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ABSTRACT

The International Institute for Educational Planning (IIEP) selected three areas of inquiry as its focal concerns for the years 1984-1989. The first of these centered on the influences on each other of education and technological development, and on the implications of these mutual influences for educational planning on a national scale, particularly in a world in which technological and scientific knowledge and powers are not equally distributed among nations. The second concern was to reassess the role of educational planning in light of the growing realization that education is a societywide process not limited to the activities of formal institutions. The third focal point was the interrelationship among education, the educational planner, and political decision-makers--an inquiry into the tasks and functions of educational planning itself. All three themes involve assessment of the fundamental relevance of educational planning to society in general. These three topics were made the subjects of the IIEP's October 1983 seminar. This document presents the paper that proposed the three central topics to the seminar participants, summary reports on the deliberations of the three working groups that met at the seminar, and reflections on the implications of the seminar's presentations and discussions. (PGD)

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Educational planning in the context of current development problems

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VOLUME I

An IIEP seminar

Paris, 3-8 October 1983

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Introduction

The seminars organized by the International Institute for Educational Planning provide an occasion for the professional community to gather and discuss a theme of common interest. The resulting analysis will, it is hoped, produce further progress towards a fuller understanding of educational planning as a social phenomenon in widely differing types of organization, society and political regime.

The IIEP is grateful for the financial support accorded by the Governments of Belgium, Canada, Denmark, Finland, Norway and Sweden, which enabled the Institute, in October 1983, to invite some fifty practitioners and researchers to discuss a theme of central importance, entitled 'The prospects of educational planning related to contemporary development problems'. The subject was admittedly a vast one, for it raised the crucial question of the relevance of educational planning, no less, not only with regard to the internal structures of the machinery responsible for the school, but in relation to demands external to that machinery, i.e. society as a whole, seen from the standpoint of its own development.

From a general point of view this seminar kept within the traditions of the Institute, by dealing with the contemporary problems with which planning officials are well acquainted. But it also performed a more particular function, providing the Institute's staff with an opportunity of expounding, to colleagues from all over the world, their ideas on the possible scope of the Institute's thinking and, consequently, work over the course of the coming six years. This seminar coincided with the final phase of the preparation of the Institute's Medium-Term Plan 1984–1989.

Needless to say, the Institute's Medium-Term Plans are essentially determined by those of Unesco itself, and must be fully compatible, complementary even, with them in every respect. This compatibility concerns the three main dimensions of the Institute's work, namely training, research and dissemination. Training remains the paramount objective of the Institute and to a large extent the main purpose of its existence. Nevertheless, the specificity of the Institute's training (which makes it unique in its sphere) flows from the lessons that it draws, not from theories, deductive methods or intellectual doctrines,

but from its tangible and realistic knowledge of the world in which educational planners work. What the Institute calls 'research' is a reflective and analytical process of seeking answers to the practical problems with which planners have to cope in their everyday work. This explains why the Institute's programme is essentially composed of empirical studies of particular cases in Unesco Member States, providing better insight into the information, forecasts and interrelations which define the responsibilities of the teams in charge of planning. These practical, empirical research projects thus make up the programme and serve as a basis for training, which is provided either in Paris, within the framework of the long-term annual programme, or on the occasion of intensive courses on particular dimensions of planning held in those countries where the need is felt to offer senior and intermediate planning officials this kind of specialization.

In this way, the Institute's research programme represents an attempt to answer the questions of planners in their practical work. Our training exercises provide the occasion to disseminate these answers. The last Medium-Term Plan, 1978–1983, emphasized, as did the concurrent Unesco Medium-Term Plan, the importance of qualitative changes in school systems and, notably, the rôle of educational planning as an instrument in the service of educational reforms. The three broad areas of research covered by this last Medium-Term Plan consisted of relations between education and work, micro-planning (school map, educational costs, regional disparities), and the administration and evaluation of educational reforms.

The Draft Medium-Term Plan for the period 1984–1989, whose final details were to be worked out in the light of the October seminar, was based on the Unesco Medium-Term Plan for the same period. Concerning education, three out of Unesco's ten Major Programmes revolved around fundamental points, such as 'education, training and society', 'education for all', and 'the formulation and implementation of educational policies'. For the Institute, the next task was to adopt the approach contained in the Unesco Major Programmes while at the same time tackling a question which is in itself an epitome of twenty years' experience (the Institute was founded in 1963): namely, given the diversity of environments in which it operates, how to enhance the relevance and effectiveness of educational planning and ensure sustained progress? In the spirit of Unesco's three Major Programmes, the Institute envisaged answering this key question by following three lines of action.

For the first, the IIEP adopted the following approach, based on the Major Programme on 'education, training and society', which presupposes insight into the rôle of education relative to the demands of development. The Institute held that, with regard to the relevance of planning, it could not examine the phenomenon of development as a whole. It was essential to choose. It took the view that one of the fundamental dimensions that account for the disparities between the so-called industrialized countries and the developing countries lay in the fact that certain countries wield a quasi-monopoly over scientific and technological development, and in the fact that other countries are depen-

dent on the strength and the power of the former. Not every country can control science and technology to an extent comparable to that of the most-advanced countries. Even so, no country can refrain from serious consideration of the state of dependence in which it has aquiesced or which it has been obliged to accept, and which perpetuates its vulnerability—ultimately to the point of threatening its apparent political independence.

The Institute has no intention of examining in detail problems of scientific and technological development that come within the purview of those sectors of the Unesco Secretariat responsible for the exact and natural sciences, and of other specialized institutions within the United Nations formally concerned with problems related to industry and technology. But the IIEP is responsible for trying to understand the tasks and functions of educational planners faced with the necessity of articulating a given scientific and technological policy with the life of educational systems. This does not mean adopting the old practice which was to tie manpower requirement perspectives in with pre-determined occupational levels corresponding to specific levels of school education; on the contrary, this approach seeks to ascertain to what extent a specific scientific and technological policy corresponds to an educational strategy option. This approach should not be confined merely to the influence that scientific and technological systems should or may have over the structures and functions of education. It should also seek to identify the resources available to or open for a scientific and technological policy due to the nature of existing educational systems and to the presence on the labour market of graduates offering a ready-made pool of technical skills suitable for immediate employment as part of a reorganization of the national productive set-up.

By adopting this approach, the Institute wanted to make it clear that an educational planner could not restrict his rôle merely to organizing, however rationally, the resources of the Ministry of Education alone. His prime task was to find out in what way his function corresponded to an overall social need within which education became meaningful. We believed this approach to be fundamental, not merely in the perspective of empirical research over the course of many years, but above all with a view to the training of future planners who would draw inspiration from the accumulated material. So there could be no question of teaching planning techniques or procedures unless these offered a response to more general problems far wider in scope than the purely quantitative framework that the utilization of the personnel and material resources of an administrative structure such as a Ministry of Education implies.

The Unesco Major Programme on 'education for all' is based on the fundamental principle that education is also an end in itself and that any step to encourage the widest possible access to educational and training systems is a measure of respect for an inalienable possession, a fundamental right even. One question raised by the problems of population growth, the demands of greater democratization and the technological explosion of recent years, concerns the variety of systems of education and training that are now emerging in

all Member States. We can no longer restrict the word 'education' to its simple meaning of 'school'; we must on the contrary seek to grasp the overall topography of the various systems of training and of learning now in existence, inside the workplace, organized by individuals themselves in response to their own needs, or alternatively devised and organized by associations, whether or not these are independent of the State machinery.

This 'discovery' of the existence of an educational field that is highly-diversified in terms of structures and functions, origins and clientèles, as well as in terms of its aims and resources, presents a serious challenge to the term 'educational planning'. For there is no longer any question of merely running invariant administrative structures; on the contrary there is now a need to devise systems that are synchronous with society and might be susceptible to some form of planning, although it is not certain that this would resemble the kind of planning found in essentially bureaucratic-type institutions.

These two windows onto society, which once again reflect the political preoccupations that lie at the heart of the two above-mentioned Unesco Major Programmes, tie in with a third stage corresponding to Unesco's Major Programme on the 'formulation and implementation of educational policies', which is particularly relevant to the International Institute for Educational Planning. This is tantamount to determining the rôle of planning officials who, on the one hand, are asked to try to respond to society's general calls for some sort of control over science or technology and, on the other, to undertake a planning process which can no longer be confined within the closed-circuit of the administrative machinery but must, on the contrary, be carried on within a highly-diversified field, with a variety of actors and officials.

Should educational planning draw its inspiration from past experience, limiting itself to the manipulation of statistical data, for example to quantify the participation of a given clientèle in a given type of education and to project the consequences of this participation in the light of certain financial, population, etc. factors? Or should it, on the contrary, open up the horizons of its thinking as regards the necessary and sufficient types of information and if so, upon what criteria should this information be identified, gathered, classified and disseminated? It seemed clear that the planning official stands at a mid-point between the educators on the one hand, and political officials on the other. So the prime task of the educational 'planner' is to answer the needs of the political decision-maker, to whom he must supply information corresponding as closely as possible to the 'preferences' of the decision-maker. To do this, it is important that planning should take a detached view of the 'heart' of the decision, and at the same time strike a balance between the demands of the decision-maker and the information available concerning the facts of educational life.

This implies, it would appear, that the information-base from which proposals submitted to the decision-maker are derived must be both deepened and broadened if planning is to provide a response to such complex problems as scientific and technological policy for example, or to the whole set of educa-

tional and training structures and resources that fill the national scene. This third approach, which may to some extent be seen as the culmination of the other two, ought, by the end of the Medium-Term Plan starting in 1984, to lead to a redefinition of the tasks and functions of planning, while at the same time enriching its processes with a new definition of its responsibilities.

All these reflections and questions were the subject of long and intensive preliminary discussion, reflection and study on the part of the Institute staff throughout 1983. This resulted in a document which defines the assumptions underlying the three major themes which the Institute had identified as the content of its research programme over the coming six years. This document served as a basis for the proceedings of the seminar held in October, and it is this document which forms the first section of the present volume. This 'introductory document' deals with each of the three themes in turn, discussing the questions, assumptions, and tendencies to which the Institute's research staff refer in order to justify their choices.

These choices still, however, remained to be confronted with the intellectual exigencies and practical experience of specialists from the various regions, whose own questions coincide with the concerns of the Institute. The IIEP therefore circulated its Introductory Document to some fifty researchers, practitioners and personalities from the administrative and academic worlds, asking them to contribute suggestions and ideas reflecting their own reactions to each of these three themes. The seminar itself was organized into a number of plenary sessions and three working groups, each dealing with one of the three themes. This general arrangement provided all those taking part with an opportunity of pursuing their own particular concerns in depth, while obliging members of the Institute's staff who took part to defend, present or reconsider the concepts underlying their own proposals.

The working group discussions were extremely rich as a consequence, ventilating the Institute's own internal thinking with the ideas, criticisms and questions of people from different backgrounds. The working groups met over a period of several days and produced relatively lapidary reports, reflecting in their different styles the nature of the discussions, arguments and exchanges that had taken place during their sessions. During the plenary sessions, moreover, both at the beginning of the seminar and at the winding-up meetings, other speakers cast a different light on this or that aspect of each of the three themes.

After the Introductory Document, this first volume also presents the reports submitted by the three rapporteurs of the working groups which provide this particular view of the discussions which took place. Finally, the Institute has taken the view that, these different personalities having agreed to meet with the Institute's staff, it was up to the IIEP to draw its own lessons from the discussions. These lessons may overstep the strict bounds of the proceedings of the seminar, since they opened up horizons which in some cases went beyond what was explicitly reported in the final documents of the working groups, suggesting the possibility of activities which may provide the Institute with a

more precise framework for its future work. It has therefore been decided that the Institute itself would prepare a series of papers entitled 'reflections on a discussion', one for each of the three themes: accordingly, Messrs. A. Benachenhou, D. Berstecher and S. Lourié have written papers on Themes I, II and III respectively. These reflections seek both to discuss the working group reports more explicitly, to encourage the reader to look beyond a very precise framework, and attempt to impose some pattern on the main views echoed by the Institute by looking back over the now-concluded discussions. It is these reflections which form the third part of this volume. They represent the framework that the IIEP has set for its forthcoming research programme.

Meanwhile, that is between the conclusion of the seminar and the publication of this volume, the Institute has also drawn up its Medium-Term Plan, which was finally approved by the Governing Board in December 1983. However, this Medium-Term Plan merely sets forth the broad outlines of the research plan, and it in no way spells out assumptions or puts forward proposals for action as do the documents in the present publication.

Even so, the seminar did influence the content of the Medium-Term Plan, just as it has influenced (as the reader will observe when comparing the 'introductory document' and the 'reflections') the thinking of the Institute. For instance, as regards Theme I, which deals with the relations between educational planning and scientific and technological policies, the discussions highlighted the importance of a new type of relation between specialists who normally have little opportunity of working together. There resulted a dialogue between economists, officials in charge of implementing scientific and technological policies, and educators. It seems indeed that the content of what these specialists had to say and the nature of their concerns frequently diverged. The seminar brought out the common features of these exchanges, and there are grounds for believing that in the Institute's future approach, it will be possible to count on effective co-operation among specialists from these different branches in attempting to define an educational strategy in which planning might have a precise rôle to play, and in which it might be able to meet the demands of a deliberate policy of securing control over, or partial dependence on, science and technology.

Concerning the second Theme, the seminar made it clear just how cautious planners must be, in non-centrally-planned systems, when trying to establish links between very small, and consequently extremely vulnerable, institutions or programmes. Some so-called 'non-formal' educational projects rule out any planning whatsoever by their very nature. Furthermore, certain vocational training programmes are far more the outcome of industrial structures and productive functions than of any effort to democratize education or assert some cultural identity. These should not be confused, nor subjected to a common structure or process by the same means or using the same instruments, simply on the grounds that they too are educational actions.

As for the third Theme, concerning the links between planning and decision-making and its information-base, it quickly became apparent that the key to

this approach ought to be sought locally, where planning is actually put into effect and where, all too often, facts do not coincide with intentions. It had become clear by the end of the seminar that the planning process could make no claim to credibility unless based on as detailed a grasp as possible of the conditions in which earlier planning processes had taken place, locally or institutionally.

So rich was the crop of ideas, suggestions and comments harvested by the Institute on this occasion, that the lessons cited above are merely given as examples of what emerged from the seminar. The Institute is sincerely grateful to all those who came to Paris and contributed to this seminar, and hopes that is fruits will justify the time that they spent with us.

Many of those who took part submitted unpublished papers of remarkable value in terms of their content and imaginativeness. It is therefore our intention to publish a second volume, shortly after this one, containing a representative selection of these contributions. (A complete list of the papers presented at the seminar may be found in Appendix I.)

It is our hope that these two volumes will offer planners, practitioners, teachers, social scientists in general, and economists and researchers in the educational and administrative sciences in particular, material to enrich their own thinking and, perhaps, to guide their own new approaches.

It now remains for us to hope that, by the end of this Medium-Term Plan, the outcome of research already underway at the Institute will confirm the approach initiated by the October seminar, the essence of which has been distilled in the pages that follow.

S. Lourié
Director, IIEP

PART ONE

Introductory document

prepared by IIEP

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Introduction

A. From the mandatory rôle to the difficulties of educational planning

Educational planning was quickly justified in theory and accepted in practice, both in the socialist countries, of course, and in the developing countries, as well as to a large extent in the free-market countries themselves. Theoretically speaking, even the advocates of liberalism acknowledge certain imperfections in the educational market and the need for government intervention to correct them. In this sphere, as in others, imperfect information and external economies or dis-economies lead conventional theory to recognize the limitations of the price mechanism as a means of allocating resources, thereby justifying state intervention.

While this approach implies the principle of partial state intervention in education, it does not in itself prove the necessity of educational planning, particularly in developing countries. The educational planning process is more complex than the mere repetition of specific state interventions to implement educational policy. What makes this intervention necessary is the concern for social justice and greater democracy that has underpinned, and still underpins, the development of education, which is necessarily costly in terms of human and financial resources.

Furthermore, planning in the educational sector is not meant to solve problems of resource-allocation from a static standpoint; it aims rather to match evolving needs to changing forms of education and training dynamically. Rather than define and channel demands for a given structure of needs, it seeks to produce qualifications for a wide range of needs, which reflect the changing requirements of development. This implies that state intervention, in this context, is liable to involve more than mere subsidies and assume responsibility for educational investment in the broad meaning of the term: training of trainers, building infrastructures, recurring expenditures.

In practice, educational planning has long been recognized as a development requirement for education as for the national economy as a whole. Where the educational system is expanding, planning should seek to maximize the internal

return on this system, to minimize costs, while at the same time tending to improve the system's external yield by matching its products to the demands related to economic and social development.

Towards the end of the 1950s and in the early 1960s it was found that conditions regarded as necessary and sufficient for successful educational planning were beginning to emerge, particularly in the developing countries. Educational planning was supposed:[1]

(a) to apply to the educational system as a whole, at every level and in all its parts, taking into consideration both quantitative and qualitative aspects;
(b) to take a longer-term view, covering several years (if possible, a time-span corresponding to a cycle of the school system, e.g. primary, secondary, higher);
(c) to be fully integrated into economic and social development planning.

Despite this undisputed theoretical and practical foundation, despite major achievements in many developing countries over the past two decades, the latent and present crisis in educational systems has also affected educational planning, which is accused of having failed to, or having been unable to, formulate the right educational policies and control their implementation, or on the contrary of having overstepped its prerogatives. In which case, we should speak of 'crises' in education and in educational planning. And it is true that the persistence of illiteracy, the reversion to illiteracy observed among children who have dropped out of school prematurely, school drop-outs, the generally rising unit cost produced by the system, the absence of or inadequate growth in technical, vocational and technological education as a proportion of general educational supply, but also and paradoxically, the under-utilization of the products of this education, have been aggravated by contemporary mass phenomena such as rising unemployment among school-leavers and graduates, and the shrinkage of public resources available for education. These 'gathering clouds' have naturally provoked questions and controversy over the capabilities, or even the usefulness, of educational planning, and particularly so in the free-market countries, whether developed or under-developed.

B. The explanations and their limitations

There has been no lack of explanations of this state of affairs among researchers, planners and even among decision-makers themselves. Leaving aside those that condemn 'token planning', seeking ideological excuses for governments short on stability or resources, we find three types of explanations:

1. The first stresses the over-ambitious and sometimes contradictory nature of the objectives coupled with inadequate human and financial resources,

1. Inter-American seminar on integral educational planning, Unesco, OAS, Washington, 1958.

organizational weaknesses affecting the design, implementation and administration of educational programmes and projects, and suggests that objectives ought to be limited and rendered more compatible while greater resources should be provided. This view does not account for the difficulties encountered by educational planning in countries where objectives are generally realistic and resources sufficient.

2. The second explanation emphasizes rather the over-quantification of educational planning and the techniques employed, and their limited field of application. Reference is made to the crisis in the forecasting of manpower needs, to the crisis in the resource-allocation mechanisms, or to the growing disparity between the aspirations of those who demand education and the capacity to respond of a system the internal logic of which prevails over the demands emanating from the society it is supposed to be serving.
   Certain aspects of this explanation are noteworthy; unfortunately, however, it does not offer a solution enabling us to introduce the full range of qualitative factors indispensable to progress in educational planning.
3. Lastly, the third explanation emphasizes the interplay of internal and external social forces, their respective strengths and weaknesses, the conflictual nature of their different strategies, which restrict the scope of planning, diverting its objectives, distorting the mobilization of its resources and transforming its results.

C. The Institute's hypothesis and approach

This hypothesis starts out from the existence of a misunderstanding or different perceptions as to the rôle and status of educational planning in free-market countries, and particularly in developing countries subject to this same market economy: educational planning is expected to turn in performances comparable to those expected of it in the socialist countries. In socialist countries, however, where educational planning was first applied, this planning benefits from three favourable conditions right from the outset:

(a) it flows from a clearly defined policy, which determines the goals and objectives of education and translates them into a plan that has force of law and the implementation of which is, in principle, mandatory.
(b) the plan's objectives are expressed in terms of precise targets, from which all activity in the educational system flows; these targets are determined in particular by the existence of employment positions the existence of which is guaranteed, and the technological determination of which is to a large extent controlled.
(c) the resources required to achieve these targets are provided by a central financing mechanism, which determines implementation conditions at the different levels of the administration

This thus creates a continuum between national policy, the planning process, resource allocation and control. Because these different phases are heavily interdependent, they may be regarded as a whole, each element of which is an

integral part of the rest, without ever, in principle, being contradictory or incompatible with the others. This cogency, this 'solidarity' between elements, in fact expresses the logical relationship between educational planning and that of economic and social development.

In particular, such major questions as the social debate over the nature of education's objectives, the economic debate over the resources to be made available for education or the nature of qualifications to be produced, are often settled outside the educational-planning process itself, in the political organs, or through the overall financial planning process, or through the planning of technological development. On the other hand, in countries in which political programme and economic and technological strategy are not spelled out coherently by the authorities at the top and embodied in a mandatory plan, educational planning will suffer from incoherent programmes and strategies and will be expected to perform functions that are not exclusively its own, such as, for example, decisions regarding objectives, resource determination and evaluation of achievements.

This misunderstanding makes it hard to assess the performance of educational planning. It is expected to justify its objectives, the ways in which it mobilizes its resources and the subsequent social fate of its products, when the answers to thse questions ought instead to be sought in the political system and its economic choices, along with the technological system.

It appears important to prove the existence of this misunderstanding and to explore its dimensions by means of research projects which may elucidate the relationship between educational planning and economic and social change.

This document describes three research themes, which it is hoped will be examined and assessed by those taking part in the seminar.

The first theme is concerned with the relationship between educational planning and technological development. It seeks to evaluate the performance of educational planning in the light of technical change. What is being sought is an understanding of whether it is possible to plan training for employment in the absence of endogenous control and of technological planning; conversely, under what conditions does the planning of training for employment become credible should there prevail the emergence and development of a cogent technology policy.

The second research theme deals with the diversification of the learning field and the problem that this presents for planners. It seeks to examine the bases and impact of such diversification, with particular reference to the demands and experience of overall human-resources planning in developing countries, to find out whether such diversification is amenable to planning, and to define the new frontiers of planning, together with its instruments and its limitations when confronted with so diverse a field.

Lastly, the purpose of the third research theme is to shed light on the place and rôle of educational planning in the decision-making and implementation process. The aim will be to examine the actual functions with which educational planning is invested, how it performs them and how it might improve its

performance by a broadening and improvement of its information system, through a reassessment of the way its techniques are applied, and through a deeper understanding of its characteristic negotiation processes. All this should help to define more sharply the specific realm of educational planning and its limitations.

The following presentation of these three major research themes naturally draws on the Institute's own experience, past research and concerns, but also owes much to the abundant and stimulating contributions of those taking part in this seminar, to whom the staff of the Institute wish to convey their gratitude.

THEME I

Educational planning and technological development

A. Introduction

Essentially, educational planning is the search for the best possible use of limited resources with certain specific objectives in view. The proportion of national resources allocated to the educational sector is the outcome of arbitration between the different sectors of economic and social life. This is a datum. On the other hand, the setting of training objectives, and hence the determination of educational demand, is both a datum and a variable of educational planning. The educational needs to be satisfied are defined globally, outside the educational system, but their translation into terms of training schemes is the task of the educational planner. Two essential questions arise at this level. The first concerns criteria of definition and the ordering of priorities among society's educational needs, while the second refers back to the technological foundations of the changing patterns of educational needs. In the developing countries, some educational needs are objectively self-evident. The raising of the population's educational level, for instance, is an immediate need in societies suffering from widespread illiteracy and the degradation of traditional cultures. Improved health and hygiene is a priority demand that also determines a potential demand for education and for medical and para-medical training. The nature of the educational needs identified, as well as the appropriate level at which to satisfy these demands, will not necessarily be identical in all cases.

Other educational needs, however, cannot be correctly defined without reference to technical change, especially as regards needs directly bound up with the workings of the national economy. The skilled workers and technical and administrative executives who run the economic machinery of the nation are the product of earlier training, determined on the basis of a given technological level. Technical change, whether local or external in origin, however entails new methods of production, calling for new types of qualification. This necessarily alters the structure of educational needs and, concomitantly, the type of training. In so far as growth in the developing countries occurs through recurrent assimilation of imported techniques, the transformation of educa-

tional needs is part and parcel of economic development. Now, while educational planning is regarded as a major contribution to development, it is rarely considered explicitly with reference to technical change. Conversely, technological development policies as worked out and applied in the developing countries (as well as in the developed countries) seldom involve educational planning. Yet technical change is in itself an additional argument in favour of educational planning, since it always introduces a dichotomy between the training schemes available and those necessary, a dichotomy unbridgeable by the free play of market forces. The extent to which, even in the developed countries, qualifications in demand have ceased to match the supply in recent years is ample evidence that an analysis of probable trends in technical change is becoming crucial to human-resources policy-making.

The failure to take technological change into account in the definition of training objectives (or insufficient consideration given to this factor) is probably one of the chief shortcomings in Third-World educational planning. One of the penalties of this planning deficiency is the persistence, especially in Africa, of heavy reliance on foreign qualifications (executives, experts, skilled workers) which often goes hand-in-hand with wastage of national qualifications, through unemployment and/or a skill-drain.

Increasing the numbers of skilled workers, specialists and technical managers without regard to the changing demands of (often imported) technology leads to still further shortages of certain types of qualifications and to a surplus of others, higher education included.

From this point of view, the methods of skilled-manpower planning deserve criticism in particular. Certain methods in use assume that labour productivity is constant over a given time-span. In these conditions, any possibility of technical change is ruled out by definition. Other methods explicitly envisage technological development, but equate it with a simple rise in labour productivity, represented by a coefficient of manpower needs. This ignores the impact of changes in techniques on the nature of jobs and qualifications. All these methods of manpower planning fail to integrate technological development and, *a fortiori*, all the constraints that a technical change massively generated from outside entails for education in the Third World. If educational objectives cannot be defined independently of technological change, and if the latter is mainly of external origin, educational planning in the Third World must plainly give proper regard to the worldwide conditions of production and movement of techniques. These conditions set the limits to its effectiveness.

B. World technology and the nature of educational needs in the Third World

The majority of developing countries are part of the worldwide capitalist economic system, of which they form the weak links, being subject to, rather than participants in, technological change.

The phenomenon of technical change has taken on new proportions in the

contemporary world. It is reflected in unprecedented growth in productivity. It has stimulated the launching of new products and the developement of new branches of activity, while at the same time utterly transforming methods of work in large sectors of the economy and generating entirely new qualifications. Lastly, it has transformed the pattern of consumption and life-style of broad sections of the population, even in the Third-World countries.

Technological change is basically a process of labour-saving, i.e. a reduction of the working-time needed to produce a good or supply a service. We also know that it creates new goods and services, the latter acquiring particular importance in our day and age. It represents the application of theoretical and practical knowledge to production through a sequential succession of techniques, i.e. of combinations of workforce, means and objects of labour (raw materials, energy, semi-finished products). If we have confined our analysis to the relationship between technical change and production, it is not through ignorance of the effects of technical change on consumption and on life-styles, but because these relationships appear to determine all the rest.

In the present period, the institutionalization of wage-bargaining based on relatively full employment, and the internationalization of competition, are powerful stimuli to technical change in the developed capitalist countries. However, the creation and dissemination of techniques are increasingly dependent on public research funding, on government orders, and more generally on the organization of technology transfers by the state, especially between the military sector and the civilian economy.

In the socialist countries, technical change results from the need to speed up the industrialization process, to modernize the economy and to promote modern patterns of collective and individual consumption. The production and dissemination of techniques depend on objectives set by an imperative planning process based on the principle of democratic centralism. The socialist countries are active in the main currents of international technical exchange, concerning the developing countries in particular, though to a relatively limited degree.

The spread of international trade and investment is producing a very high degree of economic integration among advanced capitalist countries, and between them and the developing countries. It is against this background that a new international division of labour is emerging, in which the developed economies are becoming increasingly reliant on Third-World resources of energy and minerals. This international division of labour is generating a limited, though real, amount of industrialization in the developing countries, and a relative modernization of agriculture employing the technologies of the advanced countries.

At the same time, industrial production is becoming international in scope, and this concerns consumer and intermediate goods as well as capital goods.

Machines are the principal vehicles for the creation and dissemination of techniques, and the internationalization of their production is at the same time the internationalization of technological production. But the rôle of these

machines in production and in the dissemination of techniques differs according to whether they are intended for the manufacture of consumer goods, for that of intermediate goods, or again for that of capital goods.

Machines that are specifically designed for a given activity, industry or group of activities are distinct from universal machines, which can be used both to produce the first category and to reproduce themselves. One consequence of internationalization is that, in each developed country, the reproduction of the national productive system is henceforth dependent on the world market for machines, because it requires the import of some types of machines and the export of others.

While all types of capital goods are vehicles for technical change, multipurpose machines are the only ones which occupy a strategic position in the generation and dissemination of technology. Such machines govern the capacity to design and produce new machines incorporating innovations, for all the different sectors of the economy.

The type of machines in which a country tends to specialize within the framework of the international division of labour therefore determines that country's position in the production of techniques at the world level. Technical and scientific knowledge too is becoming internationalized. Even if it is very difficult (though desirable) at present to grasp the intimate relationship between scientific development and technological development, it must be admitted that there are signs of some specialization among the advanced countries in the production of scientific and technical knowledge.

The production of knowledge directly related to the design of machines is increasingly located in accordance with each country's specialization in the different types of machinery. This is so for example for R and D in mechanical engineering, chemicals, electronics, and transport. On the other hand, atomic and space research is more directly associated with the arms sector and its location is conditioned rather by each advanced country's position in the world military system. This situation is not without consequences for the nature of the qualifications required, and beyond that, for the corresponding structure of training. The qualifications and skills required for the production of equipment and knowledge tend to be distinct from those required for their productive use. The internationalization of technological production is coming to have a considerable impact on the advanced countries' training systems.

In the Third World the constraints imposed by the internationalization of technology are still more severe, inasmuch as these countries are excluded from the production of machinery and of technical and scientific knowledge. The most advanced among them at best produce equipment for the consumer- and intermediate-goods industry, and in any case, their R and D capabilities are far too inadequate and rarely directed to their own needs.

Where industrial development is confined to consumer goods and intermediate goods, and is based exclusively on technologies imported from the developed countries, this will create particular needs as regards qualifications. The repeated importation of increasingly specialized machinery and knowledge

will entail the acquisition of more and more compartmentalized qualifications. These qualifications are increasingly restricted to the utilization of imported machinery and knowledge, and cannot lead to their being reproduced locally.

The internationalization of technological production also makes the structure of qualifications more and more rigid, by imposing uniform technical standards on the world market. The processes available on this market for the manufacture of consumer goods and intermediate goods call for a small minority of skilled workers, engineers and technicians, and for a majority of unqualified workers.

The present trend to computerization would appear to reinforce the polarization of qualifications. It is true that at any given moment, for any given product, there are several possible alternative techniques. This is because innovations do not spread instantaneously throughout the economy, and at any one time several techniques of differing age and efficiency coexist in a given activity. Also the development of a specific technique does not necessarily exhaust the possible applications of a given body of theoretical and practical knowledge. But this relative technological pluralism affects only very slightly the rigidity of the supply of techniques on the world market and the consequent absence of genuine alternative choices for the Third-World countries. The only techniques that are really available are the most recent ones (whose differences in terms of the factor proportions are minor) and those techniques that have effectively been developed, as opposed to those that might be. The export of techniques by the large firms which control their production follows, clearly, from the need to obtain the best possible return on their investment in research and an international broadening of their monopoly power. Consequently, the techniques exported are related to their current production, not to their past or potential production.

This change in the conditions of the worldwide production of techniques affects the goals of educational planning in the Third World. By unifying techniques on a world scale and by narrowing down the possibilities of choosing between them, it imposes a limited and rigid range of qualifications on educational planners.

C. The worldwide circulation of techniques and the definition of educational needs in the Third World

As a result of increasing specialization in the production of machines, knowledge and qualifications, the application of techniques too is becoming increasingly complex. This is where engineering comes into its own, its purpose being to reunite compartmentalized areas of knowledge and to combine them with machines and qualifications. The development of engineering exports is becoming a means of reinforcing Third-World countries' technological dependence, since in part it extends to the diffusion of techniques the power of control already exercised by the large firms of advanced capitalist countries over their production.

This can sometimes lead to the suppression of direct access by Third World countries to the world technology market, thereby making more difficult the definition of the aims of educational planning. In certain cases, control by external decision-making centres over the selection and implementation of imported techniques can effectively prevent planners from themselves formulating the training needs entailed by the imported technology.

In these circumstances, any educational planning becomes highly complex, if not impossible, since it is no longer possible to define training objectives. In extreme cases, it is left to the foreign firms themselves to train the managers, technicians and skilled workers (regardless of level of skill) called upon to operate the plants these firms have built. This happens with 'twin-key' contracts, in which the national operator buys a factory complete with its full operating labour force. It also happens with international training contracts. In certain oil-producing countries, frequent recourse to this approach results in the emergence of a fully-fledged parallel training circuit entirely in the hands of large foreign firms.

D. Is it desirable to base educational planning on an external technology?

We must first begin by distinguishing between the replacement of expatriate workers in an existing productive set-up, and the production of the qualifications demanded by current and future technical changes. In many developing countries, training requirements for management of the mining or industrial sector and of the economic infrastructure inherited from the colonial period are far greater than the demand for qualifications engendered by the newly-imported techniques. In this case, educational planning in the light of the demands of 'nationalization' of managers and skilled workers would appear to be an unavoidable stage, even if the rationale of the economic system introduced by the colonial powers by no means corresponds to the demands of autonomous development. In any case, it is in every way preferable to have trained nationals managing the available infrastructures rather than expatriates. It is only when nationals are substituted for expatriates that it becomes possible to acquire industrial experience, to become familiar with modern forms of production and management, and to capitalize on knowledge, especially in technically skilled or professional jobs. Furthermore, the introduction of specialist training facilities reacts upon general and basic education, stimulating their development. Indeed, in many countries in Africa, where there is relatively little reliance on imported technology owing to very slow economic growth, the transfer of managerial and skilled posts to nationals still represents the primary objective of educational planning.

The question as to whether it is desirable to base educational planning on exclusively external technical change is really relevant only to those countries in which skilled posts have already been transferred to nationals and in which there is a relatively high level of imported technology. In that event, the

structure of training needs is largely determined by current and future technical changes, associated with relatively continuous economic growth. As has already been pointed out, industry in most of the Third-World countries is confined to the production of consumer and intermediate goods. It has also been pointed out that, owing to trends in technology in the advanced capitalist countries, the qualifications and skills required for the production of these goods are becoming increasingly specialized and tending to polarize around minority segments of the work force. The conclusion to be drawn is relatively simple. Even though technical changes depend exclusively upon imports of technology from the advanced capitalist countries, educational planning is not desirable if its objectives are conditioned solely by these technical changes, at least as regards objectives directly related to employment. To make this proposition a little clearer, we should however spell out the parameters on which it is based. These mainly refer to the degree of national control over investment decisions, over technological decisions, and over educational planning itself.

In countries where investment decisions are in the hands of foreign capitalist groups, the latter necessarily control decisions affecting technology. The host country's industrial specialization within the framework of the international division of labour will therefore correspond to a simple relocation of the production controlled by the multinationals, leading to permanent reliance on external technical change.

Needs in terms of qualifications are a direct result of decisions made by the multinationals, which often in addition have the right of inspection of the host-country's training system. Furthermore, the planning of training systems for skilled workers and managers is totally dependent on the technical structure of industrial employment, since the nature of outlets is entirely determined by the foreign groups. In this case, the planning of this type of training is strictly governed by decisions taken by outside agents: from the point of view of foreign capital and its local needs, it is purely instrumental. In those countries where investment decisions are at least partly controlled by national agents, but where technological decisions are in the hands of foreign capital, the effects on educational planning may be similar. The spread of technology-import contracts is tending to bind the technical structure of the host country to the development of the world market for machinery and knowledge. Autonomy in investment decisions thus becomes more and more reduced, and opportunities of graduating to the production of capital goods become more and more uncertain. What is more, foreign capital directly controls training in certain cases. For all these reasons, the planning of training for skilled workers and managers tends to be very heavily conditioned by the training needs formulated by foreign centres, which in general correspond to specialized and compartmentalized qualifications.

Even if educational planning seeks to provide training for broad sections of the population, through the general and basic education necessary to the acquisition of technical and professional qualifications, it will still be seriously

out of line from the standpoint of long-term effectiveness. Generally speaking, the qualifications and skills required to *use* external technology cannot lead to *the capacity to reproduce and adapt* this technology and, *a fortiori*, to *the capacity to innovate* in response to the host country's needs and resources.

From the point of view of technological development, this type of educational planning would represent a considerable waste of resources, as indeed would the policy of technical changes underlying it. We may even say, in this case, that it is the absence of an autonomous technological policy, or its insufficiency, which is the key source of wastage. Here, the planning of training for skilled workers and managers becomes, purely and simply, an instrument for the needs of externally controlled development. Educational planning based on exclusively external technical change does not therefore appear to be desirable. Nor is it indeed possible. Firstly because, given the relatively fast pace of technical change in the developed economies, there are grounds for doubting the capability of Third-World educational planning to produce the appropriate qualifications within the requisite time-span. Even if it is relatively easy to forecast likely trends in technical change (all one need do is to observe the developed countries), efforts to adapt training systems to a technological development determined entirely from abroad are liable to involve educational planning in an endless race with no certainty of winning. Secondly, because the recent development of engineering, under the control of large firms, makes it impossible for Third-World operators even to formulate educational needs, often transferring into the hands of foreign operators the job of adjusting training schemes to the qualifications required by technical change.

While the difficulties encountered by educational planning in the Third World may be ascribed to the non-integration of technical change into the definition of the objectives (needs) of education, in most countries, paradoxically, its integration would be neither a desirable, nor even a possible solution. In actual fact, educational policy and its implementation by means of planning make sense only if they contribute to the implementation of a policy of local technological development. For the sake of both its credibility and its effectiveness, it must take a detached view of training needs as determined by technical changes introduced from abroad. This condition presupposes others, since a measure of autonomy in educational planning implies national control over both economic decision-making, technology imports and training.

E. Technological dependence, cultural dependence and the functions of education

The disadvantages of the Third-World's technological dependence are well known. However acquired, when imported systematically and generalized, the capitalist countries' techniques are prejudical to employment, the balance of payments and price levels. They tend to exacerbate inequalities in income distribution and to further disrupt existing production structures. They introduce or reinforce foreign control over broad sectors of the national economy

and frustrate local technological creation. Lastly, they introduce patterns of production, work and consumption that often clash with the national culture.

Discussions on technology imports in the Third World generally emphasize the nature of the techniques and their channels of transmission. But the real problem is not so much one of choosing between hypothetical alternative techniques or other means of acquiring technology from the developed countries, but to replace at the earliest possible opportunity the import of foreign technology by local technical creativity.

A technological development policy confined merely to controlling the import of techniques would be incapable of reducing the Third-World countries' dependence. Experience in certain countries, indeed, shows that control of import licences and machinery has no more prevented outside technology from continuing to be the exclusive source of local technical change than it has contributed to lessening foreign control over the national economy.

A technological development policy must imply measures affecting the procedures whereby techniques are acquired, particularly by breaking down technological 'packets' and diversifying a country's partners. Above all, though, it entails provision of the means necessary for national technological production.

This will involve the production of capital goods and knowledge underpinning the ability to create and disseminate techniques, and the training of the corresponding qualifications and skills. This is one of education's essential responsibilities. Nor indeed is this responsibility confined to the purely instrumental rôle of raising social productivity.

For at the same time as providing the training necessary for the production and utilization of techniques, education furnishes society with the means of perceiving its environment rationally and of transforming it consciously. Its rôle is therefore eminently cultural, once we recognize that the modes of production and consumption are part of a society's culture. A country that produces its own techniques solves its material problems and organizes its work, not only in terms of its resources but also in accordance with its own specific characteristics. Technical creation is a material and specialized production, but it is at all times a cultural production as well, in the sense that it projects the tastes and conceptions of a given society. Whether one takes textiles, cars, or sophisticated machinery, the goods conceived in a given country are distinctive not only in terms of the materials used or of their physical characteristics, but also because they bear a particular stamp, reflecting a certain conception of life, of things and people. Production processes for their part bear even more visibly the imprint of a people's traditions or character. Notions of authority, hierarchy, discipline and competition, which are characteristic of any kind of collective work, are experienced differently, depending upon the nature of social relationships in a given community. Conversely, the dissemination of new techniques, through the introduction of novel working methods or new patterns of consumption, affects both the tastes and conceptions of a society, as well as its characteristic social relations. It is no exaggeration to state that technical change is the material expression of a

culture, whether national or regional. It is both an essential feature of it, as are the arts, literature or philosophy, and a powerful factor of change. Technical and cultural development are interdependent. Through its rôle in technological development, education therefore plays a part in cultural development.

If the Third-World countries are technologically dependent, they are equally so from a cultural standpoint. And their cultural dependence is very largely fostered by their technological dependence. What we call the 'westernization' of the Third World is in fact inseparable from the dissemination of techniques and products emanating from the developed capitalist countries. So it would be pointless to try to diminish the cultural dependence of the Third World by means of education without simultaneously tackling the technological dependence on which it is based. Education cannot help to safeguard and enrich cultures unless it strives at the same time to foster national creative faculties.

F. Educational planning and local technological development

How can education contribute to the development of local technical creativity?

To begin with, it is necessary to train skilled workers and specialists to meet the future needs of the national economy. These needs should be determined by the overall planning process, with explicit reference to the technological changes decided by the state. While forecasting future technological developments is by definition difficult, local control over the pace and direction of technical change will revive the credibility of educational planning. By contrast, educational planning based on a process of technical change whose pace and nature are imposed from outside would appear to be largely illusory, even if this does make forecasting future trends in technology easier, the developed countries serving as a standard.

Secondly, educational planning should seek to raise the cultural and technical level of the population. People frequently fail to grasp the importance of this condition. While the need to improve the general level of education of the population, and particularly of the illiterate masses, is widely acknowledged, that of a minimum of technical knowledge is far less so. Yet efficient use of technology and, *a fortiori*, its adaptation and improvement require, on the part of both urban and rural workers, a rudimentary grasp of science and technology, which can subsequently be supplemented by experience.

This function is particularly important in the improving of traditional technical skills, on condition that provision is also made for the gathering and memorization of the know-how and experience of workers in the various sectors of the economy.

Lastly, education should contribute to the development of the ability to select and apply techniques, to design machinery and to produce technical and scientific knowledge. It should develop the qualifications and skills necessary to the accomplishment of these priority tasks.

Obviously, Third-World countries cannot expect to reproduce either the

machinery system or the research-development system, or again the training system found in the developed countries.

There can be no question of manufacturing the complete range of capital goods available on the world market, or even of producing particular models within this range. The manufacture of strategic goods (machines needed in the manufacture of other machines) will necessarily be less specialized and less complex than in the developed countries. Here, education's contribution will be to train, on a deliberate and sustained basis, engineers, technicians and workers skilled in the different fields of mechanical engineering. Relatively simple, multi-purpose machines, requiring neither sophisticated knowledge (electronics, computer sciences, electro-mechanical engineering, etc.) for their use, nor complex alloys in their manufacture, could be produced and used on the basis of essentially mechanically-oriented qualifications.

This is not a question of confining the Third World to mechanical engineering for all eternity. The fact is that at the present stage of development in most of these countries, the chances of reaching the stage of technological production are far greater in the mechanical field than in other fields.

Nor is there any point in trying to reproduce the developed countries' research and development system, which mobilizes considerable human and financial resources, often with links to the arms industry. In the Third World the production of technical knowledge, and still more so of scientific knowledge, will necessarily, and for a long time to come, occur on a relatively very small scale and will be far less specialized. Nor is it indeed certain whether this kind of production ought to be institutionalized, and it is perfectly conceivable that for a long time to come the development of knowledge should rely exclusively on accumulated production experience, except in certain sectors where basic research would be organized. From this point of view, fields such as energy, biotechnology and computer sciences could provide opportunities for Third-World scientific and technical research to achieve decisive results fairly rapidly. Education's contribution, at this level, could be (a) to train relatively generalized technologists and (b) to train top-level researchers having a fair degree of specialization in certain fields. The former, distributed throughout all sectors of activity, would be the key personnel in applied technical research, with very close links to production, in the first phase at least, and gradually leading to the production of new knowledge based both on knowledge available worldwide and on local experience. The second category would be concentrated in a small number of sectors and fields, and would form a nucleus for basic research, ultimately leading to the development of new scientific knowledge.

Technological development does not rule out recourse to outside technology. Educational planning must imperatively, therefore, make provision for the training of qualified personnel capable both of improving the capacity to choose and to apply external techniques, and of continuously adapting and modifying these techniques in line with the needs and resources of the country. This qualified personnel can work effectively only if care is taken to acquire

only those techniques whose use and transformation involves relatively stable scientific knowledge.

While co-operation between Third-World countries cannot obviate the need for essential structural changes, it can decisively improve the external environment of an educational policy designed for technological development. Two conditions, however, are necessary: that it should not be an appendage of north-south relations, and that it be organized by the states concerned.

G. Research directions

We have already pointed out above the extent to which thinking on educational planning and the analysis of the conditions of technical change and technological development have followed parallel rather than convergent lines. It is therefore becoming urgent to encourage research on the relationship between the two phenomena, with reference mainly to the development experience of the Third-World countries. Four major research themes might be suggested:

1. The first would deal with the question of methods of adjustment by the training system and/or educational planning system to needs determined by technical changes freely imported from the advanced countries. Taking the case of countries that have experienced a relatively high rate of technical change, coupled with a high economic growth rate, this research theme would seek to determine to what extent, under what stimuli and in what forms, the educational system has adapted to demands for qualifications arising from the assimilation of external technology. The main problems to be studied would be the definition of educational needs, the nature of qualifications required and of those produced, the processes of demand formulation and the provision of supply, the structure of the supply, and mechanisms and procedures of entry into working life.

   This research theme will be concerned both with educational planning and with the practical workings of the educational system itself. It is also worth asking, in this respect, whether the choice of a free-market approach to technology has contributed, and if so under what circumstances, to the beginnings of a policy of autonomous technological development.
2. The second research theme would deal with relationships between government policies on the importing of technology, the educational system and educational planning.

   The first part of this project would examine relationships between technology-import control policies and educational planning, with particular reference to the experience of those Latin-American countries that have followed such policies. To what extent does the introduction of controls on technology imports react on the educational system?

   Have particular qualifications been developed to strengthen (a) the country's bargaining power on the world technology market, and (b) its ability to adapt and improve imported techniques? What limitations has international engineering represented for policies of this kind? How has educational

planning been fitted into the overall process? The second part would analyse the impact of certain technology import patterns on training in the country (training contracts). This would involve investigating, in those countries in which the government plays a major rôle in investment and which have made extensive use of this type of contract, the nature of the training given, the resources used, and the consequences both on production and on the national training system, and on educational planning.

3. The third research theme would concern the functions of educational planning in a policy of autonomous technological development. By selecting a certain number of countries with different social systems, but each with its own local technological production, this research theme could investigate the following questions:

—has the educational system's contribution to the development of a local technical capacity stemmed from an active, forward-looking rôle, or from the passive adaptation of educational planning to decisions concerning technological development?

—what was the structure of qualifications accompanying the technological development policy? In particular in the machine-tool industry, industrial research and engineering capabilities?

—what have been the consequences on the resulting structures of educational supply?

—in which sectors have training and the production of knowledge ultimately concentrated?

—has the general technical education of the population played a part?

Analysis of practical cases in a number of countries could help to define one (or more) educational-planning models aimed at technological development, without ruling out the experience of developed countries themselves.

4. A rather more forward-looking research theme could analyse the avenues and means of technological development and its implications for education and planning in the case of countries with a low technological level and pace of development but with substantial material and human resources.

This research theme could investigate the following aspects:

—an analysis of the technological-development policy devised by the country concerned.

—an analysis of the structure of qualifications indispensable to knowledge, discovery and exploitation of the country's natural resources from the standpoint of technological development.

—an analysis of the distribution by sectors and of the resulting training needs to be satisfied.

—an analysis of the types of education required for the fulfilment of these objectives and of the educational-planning problems that would be entailed by the adoption of such orientations by the educational system.

This research would probably be more easily conducted in those countries where technological development projects relating to the above-mentioned concerns already exist.

THEME II

The diversification of the educational field

A. Introduction

There has been a rapid proliferation of non-formal[1] educational programmes over the past few decades, radically altering the contours of the educational field. While the school remains the dominant educational institution in general, it is now by no means the only place where individuals pursue explicit training objectives. A whole range of other educational activities has developed outside of it and plays a great variety of rôles.

Certain programmes, such as literacy campaigns for instance, have emerged as a substitute for school education; in other words, their primary justification is to provide a new, parallel opportunity to those who have been denied access to some level of school education. Others, such as certain programmes organized in the workplace or special programmes for young school drop-outs, are intended rather to remedy the shortcomings of the general or vocational training provided by the school. In both cases, non-formal education is confined to a *secondary, compensatory* rôle.

Increasingly, though, non-formal education has come to be regarded as

1. In this section we shall be using the taxonomy proposed by P. Coombs, R.C. Prosser and M. Ahmed in *New paths to learning for rural children and youth*, New York, ICED, 1973, pp. 9–13. This taxonomy distinguishes three forms of education:
   —Informal education: the lifelong process *par excellence*, whereby each individual acquires attitudes, values, skills and knowledge through everyday experience, through the educational influences and resources of his or her environment, namely family, neighbours, workplace and leisure, in the market, the library and through the mass communication media.
   —Formal education: the 'educational system' with its hierarchic structures and chronological succession of grades, from primary school to university, which in addition to general academic studies comprises a variety of specialized programmes and full-time technical and vocational training institutions.
   —Non-formal education: all those educational activities that are organized outside the established formal system—whether functioning separately or as an important part of a broader activity—and designed to serve identifiable clientèles and educational objectives. According to this taxonomy, the term 'out-of-school education' refers to informal and non-formal education, while 'in-school education' may also possess informal and non-formal functions or structures.

important for its own sake, with the growing awareness that the school is no longer capable of satisfying a whole series of increasingly diversified educational needs. This diversification of needs is the direct outcome of the rapid pace of economic, technological and social change in our contemporary societies (requiring continual adaptation on the part of the social actors) and of a gradual broadening of development objectives (which now go beyond mere expansion of overall output and incomes). In this context, more flexible, more individually-tailored forms than the school can provide would appear to be a necessity, whether these be vocational retraining programmes, health-education programmes, cultural activities, etc. Seen thus, non-formal education is no longer a simple corrective but plays a *complementary rôle*. It could be that it is better suited than the school to achieve certain educational objectives. It is this new approach which has found conceptual expression in the theory of lifelong education, which signifies the 'encompassing relation between all the different forms, expressions and moments of the educative act'.[1]

It follows from the above that the study of educational development and planning can no longer be confined to the fields that fall within the Ministry of Education's (or government ministries' in general) sphere of competence. In all countries there is a more or less developed network consisting of a multitude of diverse educational activities, which play different rôles and maintain *de facto* relations of substitution, competition, complementarity and even opposition among themselves. From an organizational viewpoint, however, this network of educational activities in no way constitutes a coherent system, firstly because there is no adequate co-ordination among these different elements, and secondly because there is no overall vision of the directions in which the network as a whole ought to, or might, develop in the future.

Which is why the central question to which we might address ourselves is how educational planning, which was originally designed to plan the school system, may be adapted to this broadening of the educational field and to the resulting new challenge facing the organization of education in the future.

It is this set of issues which the IIEP proposes to take as the core of one of its main research themes in its forthcoming 1984–89 Medium-Term Plan, and which we submit to those taking part in the seminar.

It is proposed to organize the discussion around three principal complementary sub-themes, corresponding to three questions on which research in this area ought to shed light. These questions are as follows:

—what forms does this diversification of educational activities take, and what are its dynamics?

—what are the effects of these diversified educational activities in practice?

—what problems of co-ordination and planning does this broadening and diversification of the educational field present?

1. Faure, E., *Learning to be*, Report of the International Commission on the Development of Education, Paris, Unesco, 1972.

B. Forms and dynamics of diversification

While educational planners and researchers are relatively well-acquainted with the formal school system, the ephemeral world of education outside the classroom has remained elusive. It appears in a variety of configurations, neither stable in time nor identical between countries. As regards the formal system, its visibility is such that it tends to monopolise action and thought. At the same time, the fluidity of educational processes outside that system makes it very difficult for the usual terms and categories to take any hold.

Non-descriptors like 'out-of-school' or 'non-formal' show the conceptual difficulties in which planning and research seem to be caught. Efforts to put some order into the ever-broadening and diversifying field of education beyond the school walls have indeed been slow. Only recently have Unesco statisticians, authors of the International Standard Classification of Education (ISCED), taken steps in that direction. Research on the forms of diversification has, therefore, an important rôle to play at this juncture. It must seek to provide *planners* with the tools to comprehend the new educational reality, and to optimize its potential without necessarily subjecting it, at its different stages, to centralized control. At the same time, it must offer educational *researchers* a chance to develop the categories and theories necessary to understand the forms, determinants and results of this new and broader educational reality.

1. Research premises

Studies attempting to take stock of the widening field of education, and at the same time to structure it conceptually, have remained few and far between. Reviewing them allows one to pinpoint a number of critical issues. Six working premises may accordingly be put forward for discussion:

1. Conceptual clarification must take precedence over encyclopaedic fact-finding. The temptation to lose oneself in an enumeration of programme features, context, genesis and clientèles is strong, given the sheer ignorance that reigns *vis-à-vis* many programmes of out-of-school education. But the modest impact of certain earlier studies is due perhaps to the fact that they did not conceptually penetrate the 'jungle of statistics', that they got stuck in inventorizing facts rather than in clarifying concepts.
2. The field of enquiry needs to be delineated in unequivocal and, at the same time, feasible terms: in particular, a clear line needs to be drawn between non-formal programmes and the elusive domain of informal or incidental education, as mentioned above.
3. Formal and non-formal components of the widening field of education need to be studied and understood together: there is evidence to argue that an understanding of many non-formal programmes passes through an assessment of their relationships (direct or indirect) with the formal school system.
4. Research should focus less on describing specific programmes than on their

interrelationships: whether one prefers the term 'network' or 'system', it is the functional differentiation between various educational programmes (relationships of complementarity, substitution, or even conflict), which are crucial both from the planner's and the researcher's point of view.

5. Research in this field should be heuristic: the categories of criteria it employs should be provisional, open and meant to be confirmed or invalidated in the process of research itself.
6. Research on the forms of diversification should go beyond a static mapping or inventorizing of patterns found at a particular point in time; it should encompass the dynamic aspect of how, in what sequence, and due to what forces, different forms of education have evolved over time.

2. Some categories in studying the forms of diversification

Research into the forms of diversification will need to be exploratory in a double sense: it should explore and ascertain the facts, while at the same time exploring the categories which best allow us to understand these facts. In this sense of 'heuristic' research, it will be advisable to study the widening field of education simultaneously from different angles:

We might view it as a process in which more diversified educational objectives are evolving. Quite a few authors argue that new non-formal programmes represent in fact a broad spectrum of learning needs, which previously either were not perceived or did not exist. What renders this category difficult to apply in actual research, however, is the complex relationship between stated 'educational objectives', the underlying 'learning needs' which they supposedly reflect, and the much less visible 'social functions' that can be ascribed to particular programmes by particular social groups. It may be that research may have to try and use these overlapping categories alongside each other: cases where professed educational objectives, learning needs and social function do not match, may turn out to be particularly interesting. Thus, this first category of analysis calls necessarily for the next one.

We might consider the diversity of 'new' client groups as a key category in classifying the widening field of education. Age, sex, geographical location, and socio-economic status of those attending different programmes would be essential dimensions of this diversification in the educational clientèle, as would be variables (more difficult to operationalize) denoting cultural marginality.

Diversification might, at the same time, be analysed as a process of wider resource mobilization and utilization. Programmes could be classified in terms of the forms and sources of support (material, human, financial) they draw on and the unit-cost levels at which they operate.

Our analysis should, furthermore, include the aspect of new modes of programme delivery and management. It is along this dimension that the observed diversification surpasses the conventional practices of formal education most strikingly. By this we mean not only the widespread utilization of the 'new media' in programme delivery, the decreasing importance of fixed physical location, and of full-time professional teaching staff, or the more imaginative use of learning environments; more significant, perhaps, is the aspect of combining education with productive work, or embedding it in the framework of integrated development projects. (In this connection, Cole Brembeck has coined the term 'Supportive Education'). Likewise, an analysis of delivery and management structures would be incomplete if it did not extend to the scope given to grass-roots-level participation and initiatives in particular programmes.

Another important category on which to base one's analysis concerns the underlying institutional diversification. The plain classification into in-school and out-of-school programmes already uses the identity of the organizing institution as its principal category. In reality, this category is much broader: depending on a country's socio-political context, a variety of 'private' agents and institutions operating for commercial or non-profit motives competes or combines with public or parastatal bodies, anchored at local, regional or central level, in organizing education and training programmes of different kinds.

As pointed out above, it is also essential to analyse the forces underpinning the emergence and development of different educational programmes. Among the forces that ought to be taken into consideration are, in the first place, economic and technical factors, which have been analysed at length in the first part of this document.

It is also worth investigating the rôle of socio-cultural and political processes. There have been recent cases in which the emergence of an educational programme stems essentially from the central government's determination to unify the country by mobilizing all of the human resources available in society (for instance, mass literacy campaigns in countries that have undergone radical structural change). In most cases the situation will be more complex, and it will be necessary to analyse closely the rôle played by different groups in the introduction of new educational activities. Which are these groups, and why have they sought an answer to their needs or aspirations outside the formal system?

Particular attention should also be given to identifying factors of diversification relating to the workings of the formal school system. To what extent can the proliferation of educative forms be attributed to the inability of this system (particularly when this was historically imported) to meet society's real educational needs? Or again, to its inability, in its present form, to provide school places for the entire population? To what extent is this failure due to the high costs of conventional education and to the budgetary pressures on most developing countries, particularly at present, or again to the relations between

planning and the decision-making system, as will be demonstrated in the third part of this document?

In addition to factors specific to a given society or to factors at play inside its educational system, it might also be worth investigating external causes such as the influence of international organizations and international co-operation. In this respect a country's external dependence, whether financial and/or technological, as has been discussed above, could well explain why certain types of technical and vocational training come to be adopted for largely external motives.

Explaining the forces behind diversification will undoubtedly present research problems. For most of the programmes whose existence we shall be trying to explain, we shall be faced with several different determinants, among which it will not always be easy to distinguish the real from the apparent, the principal from the secondary. Furthermore, determinants may vary over time. Those that account for the emergence of a programme are not necessarily the same as those accounting for its survival. How many initially entirely functional programmes have subsequently been kept alive for reasons of prestige or administrative rivalry, which, as will be shown below, find expression in the planning processes.

3. Analysis of relationships and typical patterns

What are the questions which a study of the forms of diversification in the educational field (based on the above set of variables, a modified, or even an enlarged one) might investigate?

First, relationships and cross-classifications between variables will probably be much more revealing than an analysis of each variable in isolation. Thus it will no doubt be of interest to know the spectrum of client-groups served by various non-formal programmes, or the type(s) of educational objective(s) pursued by each of them. But the really essential results may come from a cross-classification of these two variables: to what kinds of client-groups are programmes with a given educational objective being typically offered? What are, conversely, the types of programmes to which a given client-group typically has access? The point, of course, is a general one: a correlation matrix built with a heuristic purpose in mind, and encompassing all variables included in the taxonomy, should be an important intermediate outcome of research in this field.

Secondly, case studies will be able to contrast the pattern which the diversified field of education in a given country actually presents, with the set of possible patterns which are inherent in the principal variables employed. This ought to permit certain inferences as to the possibilities that have been omitted, ignored or deliberately ruled out—the client-groups not served, the combination between client-group/educational objectives not on offer, the resources not mobilized, the institutions not involved or only in certain fields, etc.

Thirdly, in order to throw the dynamic aspects of the diversification into relief, it will be essential to introduce the time factor into our analysis. By this means, and by studying contrasting political and socio-economic systems, it should be possible to discover common or distinct processes of diversification in certain types of situation, and so to gauge more accurately the relative importance of the different factors that influence educational development.

C. The effects of diversification

The effects of the process of diversification of educational activities, and more especially the advantages and drawbacks of non-formal programmes, have long been the subject of lively debate. A certain number of studies have already set out to evaluate the results of specific programmes: several institutions are now beginning to show an interest in evaluating literacy programmes, while a good many training-for-employment programmes have already been evaluated. These different research projects remain partial in scope, however, and are still nowhere near sufficient to supply policy-makers and planners with a sound information-base for decision-making purposes.

Analysis of the effects of non-formal and formal programmes raises certain methodological problems, moreover, frequently giving rise to divergent interpretations and controversy. Examples of these problems include:

—The need to take both short- and long-term effects into consideration. It is to be expected that out-of-school forms of education will have effects in the short term, since they usually flow from the immediate concerns or needs of their initiators, and possibly of the participants as well. Certain programmes may, however, have medium- or long-term effects too, and even not produce an impact until the following generation, as for example with women's education, which also shapes their own children's educational prospects.

—The need to distinguish between the effects of an educative activity on the individuals themselves (income, career opportunities, living conditions, etc.) and its impact on society as a whole. Certain programmes may, for example, enable participants to increase their income significantly without contributing to the development of the country (activities with negative long-term effects, or with negative effects on other social groups), although the reverse is just as possible, at least in the initial period.

—We need to measure not only an activity's expected effects, but also its unintended ones, those not planned for; we may refer to these as the positive or the negative 'spin-off' of educative programmes (e.g. the impact of a literacy programme on falling birth-rates, rural migration, etc.).

These problems having been stated, it is now necessary to distinguish between effects occurring inside the educational field and those occurring outside, i.e. in society.

1. Effects inside the educational field

While not attempting to be all-encompassing, a research project could seek to study the following effects:

(a) Effects on equality of educational opportunity

Certain programmes, such as literacy campaigns, accelerated basic training, or evening classes, were originally intended for people who had never been to school or had left it early, in order to give them a second chance. To what extent do these programmes achieve this objective?

To answer this kind of question, we should want to know who benefits most from non-formal programmes, and from which programmes? What are the criteria of selection: age, sex, place of residence, number of years' study, ethnic and social group, etc? The inventories mentioned above ought to supply some pointers in this respect, but more detailed studies will be necessary to determine with greater precision how non-formal programmes contribute to equality of opportunity in education. The chances are that, in certain contexts and for certain programmes (nursery school, sports, music, scientific education, retraining schemes, training seminars, etc.), it is already the best-educated or people from the better-off sections of society who benefit most.

Even if we take those programmes that are most specifically oriented towards the underprivileged groups and most likely to facilitate access to the world of work or permit upward social mobility, it is worth finding out who really benefits from them.

To this end, in addition to real problems of access, it will also be necessary to examine the extent to which people who have had access to literacy or basic-training programmes subsequently pursue their studies in the school system or elsewhere. We possess very little information on this subject.

(b) Effects on the educational level and its relevance

The diversification of educational activities ought to enable not only more people to gain access to education, but also more people to gain access to *more* education. Distance education, for instance, in principle offers the opportunity of providing a higher level of training to far more people than could have been accommodated in the traditional system.

In principle, this diversification also makes it possible to offer more specialized training courses, more relevant to the needs of particular sectors of the society and economy, inasmuch as the formal system is ill-suited to dispense highly specific training courses either in the cultural field (e.g. religious and artistic education) or with a view to highly-specialized jobs. As was seen in the first part of the document, the swiftness of technical change makes it extremely difficult to forecast the number of people to be trained and the content of the qualifications required, and any such forecasts need to be treated with caution. While not denying that this can raise other problems, it is conceivable that non-formal vocational training bodies, and employers in particular, have frequently

proved better capable of reacting swiftly to change than have school institutions, offering teaching contents suited to needs, working conditions and facilities closer to real life, and competent teachers with experience in the profession concerned.

(c) Effects on pedagogical practice

It is generally acknowleged that non-formal education has on the whole proved very open to innovative pedagogic experiments: teaching in local languages, combining theory with practice, inductive approaches proceeding from observation of practice to theory, pedagogy based on the direct and active involvement of participants in their learning processes, utilization of mass communication media. Many observers hope that the example given by non-formal education may influence the formal system and trigger changes in its pedagogical practices. To what extent has this hope been fulfilled?

With very few exceptions (education combined with production, alternating schooling, experiments in participatory teaching techniques) there seems to have been only limited interaction to date between formal and non-formal programmes in terms of pedagogical practice. Furthermore, this seems to act both ways. Surely, until now, the school system has influenced literacy and post-literacy programmes more than the other way round (the volunteers used in these programmes tending to cling to the teaching methods most familiar to them, i.e. those used in the primary school)?

(d) Effects on overall resources available for education and on the reduction of unit costs

Non-formal education broadens the amount of resources available for education by using volunteers, premises and facilities available in the community, and sometimes by asking participants and local communities to contribute financially. Unfortunately, we have very little precise information on this subject. Furthermore, and for certain types of programmes, unit costs are supposed to be lower than in the formal system: the training courses are of short duration, and the teachers are very often unpaid volunteers or members of the community performing teaching duties outside their normal activities in return for token payment. To this is added the fact that, in non-formal education, the opportunity cost of premises and the income forgone of those taking part are frequently very low, courses being held outside normal working hours. But it also needs to be pointed out that the cost of non-formal educational programmes is often low because the facilities and the materials available are highly inadequate, and consequently rather inefficient.

It would be unwise to generalize though, for non-formal education comprises both the cheapest as well as very high-cost courses. It would be worth while undertaking more systematic studies of the costs of different programmes.

2. Effects on society

It seems important to examine the effects of educational diversification in terms of three criteria which correspond to three major questions concerning the relations between education and development:

—an economic criterion: to what extent does this diversification lead to more effective utilization of resources, and contribute to economic development?

—a criterion concerning progress towards equality: to what extent does it positively affect equalization of opportunity within society?

—a socio-cultural criterion: to what extent is it an instrument of social change and of endogenous cultural development?

In the presentation that follows, it is vital to bear in mind at all times the great variety of educational programmes, of objectives and of clientèles. It is also important to bear in mind the nature of the societies in which they operate.

(a) Economic effects

(i) Effects on job opportunities. A great many programmes in the developed countries as well as in the developing countries are designed to help unemployed young people in their entry into working life. In the developed countries, these are all post-initial training programmes, e.g. vocational pre-training, further training courses, jobs pact, etc. In the developing countries, these are, among others, training programmes introduced for the benefit of unemployed young people and workers in the informal sector, and all those activities designed to promote self-employment.

Demand for these programmes is generally high. In societies where unemployment affects graduates of all levels of the educational system, it is becoming increasingly vital to have a certain basic training—although this level will vary from country to country, owing to the rising numbers of graduates—and a specific vocational training in order merely to have a hope of finding a job in the modern, or even in the traditional, sector. Initial research suggests that these programmes have experienced diverse fortunes. The results apparently vary according to: (i) the profile of those taking part (basic educational level, socio-economic background, sex); (ii) their links to the productive sector (alternating training or sandwich courses, practice periods on the factory floor or in the office, on-the-job apprenticeship: all facilitate job-hunting); (iii) the compatibility or incompatibility between the programme's implicit message (attitudes, behaviour, and aspirations conveyed) and social relations in the workplace; and, of course, (iv) the economic situation in the country, which is the vector of recruitment in the final analysis.

In any case, it does look as if these programmes make certain people more employable, even if they rarely create jobs themselves. The people thus trained obtain jobs previously occupied by other people. Do they not in this way merely shift the problem of unemployment from one category to another? Is there not a risk of encouraging employers to speed up their personnel turnover and resort to short-term contracts, at least among the lower-paid categories of

personnel? These hypotheses need to be verified in a number of countries.

As for training courses designed to promote self-employment, the few existing evaluations show that they are more likely to succeed if combined with technical assistance and soft loans, or else in very close liaison with the world of work, as in informal apprenticeship.

(ii) Effects on workers' productivity. Some non-formal education programmes with a functional content directly related to the world of work are intended to increase the labour productivity of those taking part. This impact nevertheless remains to be evaluated, and that concerns the impact both of literacy and post-literacy courses, of programmes aimed at farmers, fishermen and other rural workers, of retraining and further training courses for workers and clerks for industry, and of all types of further-training seminars for executives and managers. Productivity is not easy to measure. Economists frequently use wage levels as an indicator of marginal productivity increments. But this neglects the fact that productivity increases may not necessarily find automatic reflection in increased earnings: in rural areas, income can depend on many other factors (raw materials price-fixing, etc.); for salaried employees, everything depends on the employer's wage policy, on his readiness or otherwise to recognize qualifications acquired, and more generally on his manpower management policy and the place of the enterprise in the economy at large.

In principle, continuing vocational training, as a permanent factor in the transmission of new technologies, in the reshaping of qualifications and adaptation to equipment that incorporates technological progress, appears to be a very important factor in economic growth. We shall need to look more closely at the nature of these training schemes, however, and their rôle in employers' personnel strategies, together with their real impact on workers' training.

Are these genuine long-cycle training schemes furnishing qualifications and aimed at developing mastery of the underlying scientific operations, hence transferable and evolving know-how, or are they short-cycle adaptive training schemes narrowly linked to increasingly rapidly obsolete plant? Do these schemes not represent a means of institutionalizing short-term employment, hence a wastage of human and financial resources?

(iii) Effects on local technological creativity. As we saw in the first part of the document, education plays an important part in fostering technological development in the sense of local creativity in terms of machinery and knowledge. It is worth pointing out here that this capacity cannot be restricted to the (indispensable) growth in the number of engineers, technicians and skilled workers, but must also include the dissemination of knowledge and technological culture throughout society as a whole, together with the safeguarding and development of traditional know-how. These objectives may be furthered by means of non-formal programmes, both in rural and in urban zones, provided that the actions envisaged are in keeping with an overall trend, examples of

which can be seen in certain countries now pursuing technology development policies in the precise sense of the term.

(b) Effects on equalization of incomes and individual status

By making people more productive, the diversification of educational activities ought to help them increase their earnings and raise their social status. By making them more employable also, and better informed as to the various possibilities, it ought to encourage the geographical and/or social mobility of the people concerned. Has this in fact been the case? What can we learn from an analysis of individual trajectories of people who have been through different programmes?

Several hypotheses on this subject may be suggested:

First hypothesis: non-formal education, preferably combined with training acquired in the school system, raises an individual's income and facilitates social mobility.

Second hypothesis: non-formal education has one or more of the following effects:

—it does not grant diplomas recognized in a world increasingly obsessed with 'credentials', where competition is fierce and where possession of a certificate is an essential condition for finding work or gaining promotion;

—it provides highly specialized, rapidly outmoded training: employers are reluctant to recognize newly acquired qualifications and to grant pay rises or promotion;

—it is very effective at raising the consciousness of the masses and encouraging workers and peasants to stand on their own two feet. But where such attitudes are incompatible with existing socio-political systems, programmes quickly come under attack and are modified accordingly;

—it helps as much to provide the participants with technical capabilities as to inculcate certain attitudes and values that socialize them into accepting their social status, even where this is a marginal one. Non-formal education would, on this view, play a highly significant rôle in limiting participants' aspirations, whereas the formal educational system tends rather to raise them.

In most of the above-mentioned hypotheses the diversification of educational activities does not appear to contribute to progress towards equality, and may perhaps even prove to be an additional instrument of social stratification.

(c) Socio-cultural effects

Here, we could examine a series of precise effects, either in terms of structures (effects on the social organization of local communities, on power structures, etc.), or on people's attitudes and behaviour (effects on beliefs, on attitudes and practices regarding health and hygiene, on birth control, etc.).

But the key question is surely whether or not this diversification of educational activities has been or could become an instrument of a more authentic cultural development. In some ways, the school may be seen as an instrument

whereby a dominant (frequently foreign) cultural model is disseminated throughout (imposed on) a population. From the population's viewpoint, it often tends to impoverish rather than enrich their culture (through the disappearance or weakening of local languages and written traditions, the marginalization of value systems and local technology, the treating of different cultural experiences as so much folklore). Have the forms of non-formal educative action that have emerged in recent decades, and particularly certain cultural and grass-roots educational programmes, succeeded in counteracting this tendency? To what extent have they managed to promote an endogenous cultural development, i.e. development based on existing value systems and life-styles and which is explicitly intended to strengthen the capability of communities and individuals to stand on their own two feet in every sphere, including technology, whose key rôle in the structure of life-styles and modes of perception has been discussed above?

(d) Co-ordinating the diversified educational field and the rôle of planning

Questions of co-ordination and planning are obviously central to the problem under discussion. One might even say that the ultimate purpose of discussion of the two other sub-themes proposed here is to help us answer these questions more adequately.

Most non-formal education programmes were established in response to precise needs, their organizers being unconcerned to work out functional or even organizational relations with other formal and non-formal programmes. As has been pointed out already, this does not imply an absence of *de facto* relations between the different programmes, which need to be properly understood before turning to the question of co-ordinating the educational field as a whole. This is what inventory studies and studies of determinants and effects ought to help us to bring into relief. Nor does this mean that people do not manage to build educational combinations and to map training itineraries to meet their needs despite the absence of organizational co-ordination. These combinations and itineraries could be described by means of individual tracer studies.

The question facing planners then is to what extent, and how, improved, more rational organization of educational supply as a whole could help individuals to put together their own combinations. Or, more precisely, how can an assortment of educational activities be transformed into a coherent whole by which individuals and groups may at all times claim recognition of their past training and experience, and thus build their own training itinerary according to their own individual needs and in keeping with development projects. This is the challenge facing lifelong educational planning, and at whose heart lies the problem of co-ordinating the different educational activities.

Several questions deserve to be raised in this respect; they will be discussed in the following sections.

D. The object and degree of co-ordination

While the need for better co-ordination is generally acknowledged, there is no uniform view as to the content or degree of this co-ordination. Should it be confined simply to making the existing *de facto* relations between different programmes explicit or strengthening them, or is there, on the contrary, a need for a thorough overhaul of the educational field? Any kind of co-ordination, however limited, necessarily entails a right of inspection, or control even, by some central body, and hence some loss of autonomy on the part of the organizations to be co-ordinated. At bottom, the question is whether or not one should go so far as to turn the field of diversified education into a fully-fledged educational system (i.e. a coherent whole with a single structure, shared objectives and global planning) without jeopardising the entire rationale of non-formal educational activities, in other words their very great organizational flexibility, which is precisely what enables them to provide relevant and effective answers to very specific, changing, training needs. Some people are prepared to accept *co-ordination* within a multifarious network, but not *integration* into a single system.

Obviously, different views on content and the necessary degree of co-ordination will depend on one's vision of social organization, the function of education within that organization, and the appropriate rôles of the state, of regional and local communities, and of private initiative. These views will also, and above all, depend on people's perceptions of relations between social and private needs, and on their analysis of the relations between forms of expressions and the nature of needs. This gives some idea of the complexity of the problem, which becomes still more complicated if one takes development imperatives into consideration.

1. The limits to co-ordination

To discuss co-ordination in educational matters is to assume, *a priori*, that the different formal and non-formal activities in fact pursue similar or complementary objectives. Is this true of all educational activities? Some, particularly among those pursued in local communities by minority or fringe groups, may have explicit objectives that run counter to those of the dominant formal system imposed by the centre. This is the case with certain grass-roots educational and cultural programmes, for instance. How should the conflictual relations inside the world of education be handled? Is it possible to co-ordinate while acknowledging the right to be different?

Co-ordination should concentrate its attention mainly on organized educational programmes. However, we know that individuals receive the greater part of their education through what is commonly known as informal education, in other words the spontaneous education received in the home, during free time, in the work-place or *via* the mass communication media. We know too that the success of organized educational programmes, whether

formal or non-formal, depends largely on the degree of constructive interaction with the informal educational process. What is the most appropriate way to take into account these *de facto* links of informal and other types of education?

Lastly, co-ordination cannot be confined to education alone. The fact that many non-formal educational programmes are an integral part of wider development projects puts pressure on education officials to establish direct co-ordination with sectors outside the educational field.

2. Strategies of co-ordination

One cannot set up a global educational network or system overnight. The need to keep a given network as flexible as possible, in order to meet ever more diversified and variable needs, makes it difficult to regard the organization of any network as final or definitive. The form and degree of co-ordination between the different components of the network too should vary, given the diversity of educational activities and the specificity of their functions, clientèles and organization. Obviously, relations between literacy programmes and the primary school, for example, have their own distinctive features just as much as those between different formal and non-formal programmes preparing people for work. The idea of a gradual development of *sub-networks* or of *sub-sets* may thus come to look attractive. These sub-networks may be defined according to a variety of criteria, such as the function of the programmes (for example, programmes for rural development), the clientèles served (e.g. youth programmes), the authorities responsible for their organization (e.g. state-organized programmes), etc., or again according to a combination of these criteria.

One important distinction needs to be made according to whether co-ordination is envisaged as a centrally or locally-based process, i.e. depending on whether the strategy is a centralized or a decentralized one. The first category includes countries (generally planned-economy countries) pursuing a *global strategy* aimed at setting up a unified educational system, within which relations of complementarity between school and out-of-school education are systematically reinforced at every level. The state acts as central co-ordinator, with the aid of a planning mechanism embracing all the different levels and types of education. In countries where central planning is not as powerful and where private initiative plays an important part, co-ordination strategies generally appear to be *partial* ones. They consist in forming sub-networks as described above. In certain cases, as in most Latin-American countries, central bodies have been set up with responsibility for organizing vocational training outside the school system. These bodies, such as the SENA in Colombia or the SENAI and SENAC in Brazil, are financed by a special payroll tax, and generally enjoy a wide measure of financial, administrative and technical autonomy. Here, the state plays only a secondary rôle (these bodies often have the status of non-governmental organizations) and such planning as is performed is indicative in nature and confined to these bodies' particular sphere of compe-

tence. Another approach is to set up, inside the Ministry of Education or some other ministry, a distinct department or section especially responsible for the organization and co-ordination of all or of a sub-set of non-formal educational activities (or of adult education). In many cases, though, one wonders just what this kind of central body really does manage to co-ordinate, apart from those activities that it controls directly. This question is particularly relevant when private sector training accounts for a considerable proportion of the field and when, as frequently happens, there is no planned general framework into which co-ordination could be fitted. Even when one does exist, planners are not in a position, technically and/or politically, to influence the decisions taken.

In any case, and particularly in the last two examples, the fact that there does exist a body with the special responsibility for co-ordination does not necessarily signify that there is any real coherence between the programmes. Nor does the setting-up of institutions responsible for co-ordinating non-formal training activities exclusively resolve the crucial problem, namely that of relations with the dominant formal system.

The decentralized strategy consists in encouraging co-ordination at local-community level. This strategy, which has found expression in the community-development movements and, more recently, in the integrated development movements, stresses user-participation and initiatives taken by agents of development, rather than planning by the organizers and the strength of structures. This bottom-up approach has often been countered by ones from the top down. But what is the true nature of the distinction between the two, and how do they relate to each other?

An analysis of co-ordination experiences now in progress in several countries may help to clarify the possibilities and limitations of different strategic options in the light of their socio-political contexts. Obviously, the degree of co-ordination and the different forms that this can take depend largely on the rôle of the state in the societies in question.

3. The challenges to planning

The rôle, organization and methods of planning will have to be redefined for the purposes of co-ordinated management of an extended educational field. Planning a complex educational network capable of responding flexibly to the changing needs of individuals and society raises many problems, of which the following appear to be particularly important:

1. The problem of identifying needs. In this new perspective, it will be necessary to apprehend a whole series of changing needs in every area of economic, cultural, social and political life. The traditional instruments of identification and forecasting of social demand for education or of manpower needs will no longer be either sufficient or relevant in this new context. The ways in which needs are expressed constitute one problem. It will presumably be essential to employ more qualitative methods of diagnosis and forecasting, with greater emphasis on research, exploring probable and

desirable futures, and consultation. The purpose of this function will be to lay down guidelines and pointers with respect to objectives.

2. The problem of information and orientation. In a uniform, standardized educational system, keeping organizers and users informed, and guiding users, raises no major problem in principle. On the other hand, these functions become critical when training activities start to proliferate and diversify. The development of an adequate information system and guidance mechanisms becomes a necessary condition of smooth interaction between users and suppliers, and of cogency among general development objectives.
3. The problem of diploma-equivalence and certificates. One of the factors complicating the construction of individually-tailored educative itineraries is the fact that training acquired in one place, whether in the formal, non-formal or informal educational sectors, is not recognized elsewhere. For an educational network to function smoothly, it is necessary to establish bridges between different programmes, which implies the establishment of generally recognized equivalencies. Several countries have begun to introduce systems of this kind, e.g. the 'accreditation and equivalency programme' in the Philippines, or the CINTERFOR Professional Aptitude Certification project in several Latin-American countries. Setting up this kind of system entails a whole series of new problems, of a technical, political and organizational order. It would be interesting to analyse these in greater detail, just as it would be important to see what the effects of these programmes are. To what extent has the introduction of an equivalency system influenced programme content and training methods? Does it produce a gradual formalization of non-formal programmes, as some people fear? How do certificates affect initiatives regarding the creation of new educative activities? Lastly, where educational planning is concerned: what rôle does the certificate system play in regulating social demand? Does it replace planning in what might be regarded as a 'free' market based on supply and demand?
4. The problem of resource-mobilization and allocation. This classic problem has been amplified by the network's complexity. The broadening of the educational field confronts the planner with a variety of financial and human resources, which he must take into consideration even if he controls directly only a portion of those resources. Furthermore, given the variety of organizing bodies and the flexibility of educational activities, the allocation of central resources becomes an excellent mechanism for regulating planning or co-ordination as a whole, which complicates the definition of allocation criteria and the introduction of a system to evaluate the utilization of these resources. Long-standing experiences such as the 'University Grants Committee' in Britain and India offer practical examples of this means of regulating the development of one sector of education while respecting the autonomy of its constituent institutions.

The practical shape that planning takes in order to cope with these different

problems varies from one country to another, depending on its traditions and its socio-economic, political and administrative context. But it is generally agreed that the organization of planning for the purposes of co-ordinated management of the educational field faces a threefold challenge. First, a good many educative activities are not directly within the Ministry of Education's sphere of competence, but are within those of other ministries or bodies. Presumably then, the planning of the educational network as a whole should be viewed as an *intersectorial task*.

The second question concerns the distribution of planning tasks between the different decision-making levels. Obviously, a flexible network that is supposed to meet the diversified needs of its users cannot be run by means of decisions and instructions handed down from the centre. What is needed is a *balanced distribution of planning responsibilities* between the different levels of the public administration on the one hand, and between these levels and the different private or public agencies responsible for organizing programmes on the other. This distribution will probably have to distinguish between functions of orientation, organization and evaluation, and those of execution, especially where the state, as is often the case, finances the bulk of non-formal educational programmes.

The third question is that of *participation*. In the proposed perspective, user-participation is seen both as an indispensable means of planning and as an essential objective. A means, in the sense that it is through the involvement of the different actors and social groups that their needs can be best identified; an objective, inasmuch as participation is itself a training process, which prepares the ground for the construction of culturally more authentic and more democratic development models.

Formulated thus, few would dispute these three principles. The problem is how to put them into practice.

E. Research orientations

A host of more or less uncharted research subjects could emerge from the foregoing discussions. Some selection will therefore be unavoidable. If a modest institute such as the IIEP is to undertake research on the diversification of the educational field, it will be necessary to consider factors of time and practicability when selecting themes and approaches. Three major research directions stand out.

1. A study of the forms of diversification. The prime objective of these studies would be:

—To assess the extent of the diversification of the educational field.

—To study the main characteristics of the various programmes and the relations between them.

—To apprehend the forces that affect the emergence and development of these programmes.

This would involve selecting precise entry-points: these might be the study of

(i) a single province or region and/or (ii) a determinate sector of activity and/or (iii) a particular development objective (integrated rural development, family and health planning, etc.). These studies, which should necessarily be limited in number and cover a series of judiciously selected situations, could contribute to the development of a methodology designed to enable planners:

—to diagnose the extended educational field;

—to classify programmes in terms of their importance to their work.

2. Detailed analysis of the effects of diversification in a number of specific fields of training. Given the priorities of a great many countries, these fields might be:

—basic education,

—education for rural development,

—education for the development of non-agricultural (essentially industrial) sectors.

For each of these sectors, this will entail acquiring a fuller understanding of the determinants and operational modes of different formal and non-formal programmes, and measuring their economic effects, their effects on progress towards social equality and on the socio-cultural plane. Answers will be sought to the following questions among others:

—what are the possible combinations between formal and non-formal education, and which social groups, sexes, ages, urban/rural groups benefit most from the different opportunities?

—how do the various combinations impact on geographic, professional, and social mobility of the people concerned?

—what is the impact of different educational and professional itineraries on incomes and jobs occupied?

—how do the different combinations affect the development of specific sectors?

—how do different types of employer acknowledge the different ways of acquiring knowledge? To what extent are their manpower-utilization strategies reflected in their training policies?

Depending on the circumstances, these studies could be supplemented by a study of planning problems and practice.

3. Apart from specific planning practices in some of the sectors mentioned above, it would be worth while undertaking a few case studies on global or partial strategies designed to co-ordinate the diversified educational field in countries with contrasting social, economic and political characteristics. This will entail detailed analyses of how different strategies have tackled the four problems mentioned above, namely:

—identifying needs;

—informing and guiding users and suppliers;

—accreditation of past training and transfers between different programmes;

—resource-allocation and the evaluation of results.

THEME III

The rôle of educational planning in the decision-making and implementation process

A. Introduction

In order to discuss the rôle of planning in the decision-making process, we must first clarify the nature of the planning to which we refer. This is because there is considerable confusion over two different kinds of planning: one is effectively integrated into an overall political project, duly accompanied by the necessary means of direction, implementation and control; the other, whose connection with development planning is partially theoretical, nevertheless tends to define itself as a whole in relation to the ends of the contemporary world as it perceives it. On the one hand we have a system, on the other an 'attitude'. In the first case, planning is a whole, in which orientations, choices, decisions and implementation hang together logically. In the other case the situation is 'non-coordinated' and often indeterminate. Each of its elements enjoys a fair measure of autonomy. Processes, structures, actors and products are combined in an infinite variety of ways which, according to the categories of March and Simon,[1] are not necessarily acceptable, comparable or foreseeable by those whose task it is to identify them.

Our examination of planning, decision-making and implementation will be concerned primarily with the 'non-coordinated' situations, for it is here that the incompatibilities, dysfunctions, and contradictions even, between the socio-political context—national and international—and the educational system (which is supposed to serve this environment and draw its sustenance from it) on the one hand, and between the various phases of educational life within which planning plays its part on the other, appear most sharply.

Our aim, in this study, is to gain a fuller understanding—or recognition—of the true impact of planning on educational decision-making, and on the way in which these decisions are translated into concrete terms affecting—ultimately—the very life of the most modest educational institutions and their ability to perform their tasks effectively.

From having been a passive instrument for the execution of decisions,

1. March, James G., and Simon, Herbert A., *Organizations*, New York, Wiley, 1958.

educational planning has gradually tended to become an active tool of the 'social project' in the educational field. The two essential ends that are its driving force are its ability to meet the objectives of this 'social project' and to optimize the utilization of state resources.

The first of these, which entails dialogue with the political actors, will depend on the complex network that consists essentially of state policy-makers, the 'political mediators', who by their very nature will impose or shape a policy and determine the conditions making it possible to mobilize the resources necessary to its implementation. The second, entailing an interactive process with educators and pedagogues, administrators and—above all—the beneficiaries of educational services, will be more a question of co-ordination and organization on the one hand, and of gathering, analysis, dissemination and reception of information on the other. It is here, in principle, that planning finds its 'stable' base.

These ends have their corresponding distinct levels of structures, actors and rôles. However, these distinctions are not always clear-cut, and become less and less so as planning comes to be entrusted with—or shoulders—tasks connected with the preparation of decisions, either by proposing strategic alternatives to the so-called 'policy-making' levels, or by organizing grass-roots consultations, or by means of relations with public opinion.

Still more fundamental is the two-way link between planning and the implementation of the proposed solution, which may in some cases take the form of an educational Plan, consisting of programmes and projects. Indeed, certain models incorporate implementation and evaluation of results into the planning process. The conceptual vision according to which the officials in charge of implementation (the 'vertical departments' and the regional or local institutions of education ministries, for example) are regarded as actors in a global institutional planning exercise, would confirm these models. Definitions become more elusive, however, as soon as we try to identify rôles precisely. To be sure, we can isolate a structure consisting of actors responsible for research, policy proposals and planning from the administrative context responsible for implementation. But one can scarcely claim that these last, teachers included, never perform tasks relating to forecasting, organization and evaluation—in a word, planning. It would be worth studying planning practices in order to find out to what extent these models correspond to real life.

The planning exercise does nevertheless take place on several different levels: centrally, where the above-mentioned functions converge, to which we may add those of monitoring the implementation of the plan, which is (in principle) quite distinct from administrative (or even legal) responsibility for the implementation of plans, programmes or projects; but also at intermediate (regional) and local levels, where one also finds the functions of organization-coordination and dialogue with teachers and 'taught'.

The complexity of the political network which is the driving-force behind planning, and at the same time receives stimuli from it, emerges more clearly—though not exclusively—at the central level. The network is a complex one

because built on relations of power and, consequently, dependent on the interplay and relative importance of the personalities and groups involved. Who was the first person to call for this or that decision (a reform, for instance)? Was there a 'first' person? How does this decision relate to this or that aspect of the social project? Why was one aspect given priority over another? Will the choice fall on the more 'tame' or on the more 'wicked' (according to the terminology of Rittel and Webber)?[1] How were the views of pressure-groups favouring different dimensions, or even opposing ones, of the draft reform reconciled? Was the strategy adopted one of negotiation or one of conflict? What friction did a given reform produce? Etc. The answer to many of these questions will depend on the effective rôle of planning, while the answer to others will be more deeply stamped with the arbitrariness or unpredictabilities of political life.

While there can be no question of treating relations between the world of politics and that of education as a matter of secondary importance, it is clear that an analysis of the decision-maker's motives, his relations with other actors in the political world, and his reactions to circumstances favouring or hindering this or that pressure for reform, inevitably involves a high degree of subjectivity. Such studies deserve to be encouraged and developed, but they do not fall within the sphere of competence of a professional community such as the Institute.

But this is where new questions arise. Has planning itself stimulated a process of exchanges of views and made room for new actors? Has it referred to any form of public opinion? Has it proved capable of seeking out the kind of information that the decision-maker may require *prior* to making his decision, thereby enabling him to base his judgement on the broadest possible awareness of the facts? Has it also implicitly (or explicitly) sorted out the 'tame' from the more 'wicked'? This brings us back to the two axes, namely *processes* and *techniques*, whose purpose is to reconcile central political decisions, i.e. the fundamental decisions (from which others, no less complex, will follow) and the mobilization of the resources necessary to their fulfilment.

We may view the planning process as consisting of the actors, structures, methods and results of the planning exercise. This definition has the advantage of considering planning as a whole, of studying its dynamics, of analysing the actions and reactions of the different actors (within the structures that determine in part their behaviour) and more fully elucidating the particular forms taken by information, techniques and communication (and the uses that are made of them) in the light of what is at stake. This definition also allows us to view the planning process as a continuum, starting out from the general guidelines laid down by policy-makers and concluding with the results obtained by educational establishments.

To facilitate our analysis, it may be useful to isolate certain parts or aspects

1. Rittel, H.N., and Webber, N., 'Dilemmas in general theory of planning', *Policy sciences*, 1973, Vol. 1.

of the process; among the different possibilities, two are of obvious interest and have therefore been retained: (a) restricting analysis to processes involving certain decisions (choice of general plan objectives, resource-allocation within the budget, implementation and monitoring of the plan); and (b) concentrating the study on the arguments put forward in the negotiating process, in other words, on information and techniques mainly.

These two approaches are clearly complementary. It is impossible to study a process (however limited) without giving consideration to the actors (and their powers) and structures (including the different echelons of the educational administration), or without delimiting the scope of what is negotiable, without taking into account the nature of the arguments put forward by the different actors involved, or without examining communication procedures. The fact of restricting the study of the process to certain decisions only does not necessarily imply whittling down the dimensions of the analysis at the same time. Nor is it possible to evaluate the utilization of certain techniques in the planning process, nor, in particular, to tackle the problem of information shortages, without explicit reference to the decisions concerned and to all the different aspects mentioned in the study of processes.

B. Analysis of processes

Each phase of the planning process seen as a whole (from the discussion of objectives to implementation and monitoring), involves negotiations concerning a decision-area of variable proportions and containing a variety of actors. Information and communication (the exchange of information in the broadest meaning of the term) obviously play a significant rôle in these negotiations.

Analysis of a negotiating process will yield a better understanding of the result if the study focuses on the actors, their interests and their powers, on their shifting positions in the course of the process and the nature of the final compromise. As a pre-requisite to any such analysis, it is necessary to have a clear understanding of the nature and importance of the issue for each actor, in order to assess correctly his arguments, his means of pressure and alliances and, more generally, his strategy. Arguments may be grouped into different categories, according to whether they refer directly to the decision under study (advantages, drawbacks, feasibility, consequences, etc.) and thus form part of the explicit rationale, or according to whether they seek to meet the fears/negative reactions of other actors, and thus correspond to their implicit interests, or again according to whether they refer to notions of authority and so-called political choice. Not all the actors necessarily have access to the entire gamut of possibilities, and their bargaining-power will vary accordingly. More generally, this bargaining-power will depend on socio-political context and level inside the hierarchy.

These remarks bring out the full importance of information (and of the ways in which it is used) in any negotiating process: information concerning the decisions under discussion (past results, foreseeable consequences, possible

alternatives, etc.), or concerning the actors and the opportunities for bargaining, etc. A number of methods may be used to try to control—or to democratize—the negotiating processes. It is clear, moreover, that administrative structures (whether resulting from the decisions of political leaders in power or whether they impose themselves—provisionally—on them) influence both the behaviour of the actors and the processes themselves.

It may be interesting to spell out these notions in slightly greater detail, by analysing three phases of the planning process, namely determination of the plan's general objectives, the budgeting process, and the implementation and monitoring of the plan

1. Selecting the general objectives of the plan

It is during this phase that the main lines of development of the educational system are subjected to review, selected, if need be, spelt out in greater detail by means of global development blue-prints and, lastly, approved by the political authorities. Depending on the country, and on its stage of development, this phase will be more or less extensive and explicit: it may be confined merely to instructions from the Minister of Education to his heads of department.

There are obviously grounds for wondering what political leaders base their choices on and, like Herbert Simon,[1] we may suppose that they meet some 'criterion of satisfaction'. There are also grounds for supposing that these choices tend, in the first place, to focus on those areas likely to arouse the least resistance. Lastly, we may hypothesize that these general orientations result from the complex interaction (whose limits and outcome are always very difficult to define and foretell) between different factors, including:

—a set of views regarding education and its relations with development, based both on values, on the evolution of ideas and forces on the international scene, and on the body of information available to each official concerning the history and present situation of education in his or her country;

—an appreciation of the forces present, of their relative weight in the political balance and of their interests in the educational field; a balance-sheet of measures envisaged in other fields and expected to be favourable or unfavourable to them;

—a vision of the internal and external workings of the bureaucracy, and particularly an appreciation of its scope for action and its limitations.

We obviously do not mean to say here that the information available to political leaders is at all times relevant and reliable, that their appreciation of the possible reactions of lobbies is altogether precise or, lastly, that their perception of bureaucratic behaviour is perfectly clear. All we are claiming is that all these factors play a part or may play a part in both initial orientations and subsequent choices.

1. March, J.G., and Simon, H.A., op. cit.

While it is virtually impossible—for an international agency at least—to seek to provide a precise explanation of the bargaining that goes on between political officials, it is possible—and highly revealing—on the other hand, to study the interactions that occur between the different actors (minister—leading ministry officials, including the head of planning—other ministries or national institutions responsible for educational activities—teachers' unions—parents' associations, students' associations—private education, etc.) on the occasion of negotiations designed to select, spell out and approve the corresponding objectives. The precise unfolding of this process will vary according to the importance of the issues and the strategy ultimately selected by the political and administrative officials. The nature of the actors involved, the moment at which they become involved, and the facts communicated to them to allow them to appreciate the situation, are part and parcel of the strategy. In certain cases, external actors[1] are not invited to participate until the principal choices have been decided on (or at least the broad outlines): in which case the purpose of their involvement will be to 'socialize' them (i.e. get them to accept these choices), even if this means certain slight changes in emphasis on certain objectives or timetables. In other cases, the external actors intervene right at the beginning of the process, and can modify certain of the main orientations before their final selection. The appeal to public opinion can play a big part in this process, either in the form of consultation by means of grass-roots discussions, by sensitizing opinion on certain problems or even by using it to exert pressure. In some cases, lastly, there is simply no outside participation or consultation whatever.

In this multi-actor process, exchanges between political and administrative officials always have an important part to play. They are influenced in particular by the way the administration is organized and by conflicts of interest, which inevitaby arise between the different ministerial departments and—sometimes—between the central administration and regional officials.

In these exchanges, each actor has his own strategy, based in particular on information available to him concerning the other actors. In fact, each actor is well-acquainted with the implicit objectives of the other actors, their interests, their room for manoeuvre and alliances. What each pressure-group tries to do is to communicate its information (or at least give an inkling of it) to all those who are capable of affecting its interests, so as to try to influence certain decisions in advance: this is a constant feature of group strategies, seeking in this way to intervene in negotiations, sometimes even before they have begun. It is important to note, too, that forms of negotiations and actors' strategies differ markedly according to the culture of the society and its socio-political context.

The exchange of information obviously has a key rôle to play in dialogue between the actors (and particularly between political leaders and top officials in the administration). There is always a risk that information will be 'filtered',

1. That is, all the actors with the exception of the politicians in power and top ministry officials.

of biased studies, of not-altogether-objective interpretations and presentations of facts, in a word, of deliberate or unwitting manipulation of information. This risk is not necessarily attached to any actor in particular; it may concern anyone who has the possibility of generating information (and not only statistics, needless to say). These remarks emphasize the importance of devising a relevant, reliable and swift system of information inside the administration. This is indeed a pre-condition for clarifying and 'objectivizing' (this word needs to be handled with caution) the debate.

Information transmitted by the educational administration to the political echelon includes evaluations concerning the implementation of the plan and educational development, together with preliminary projections worked out by the planning and budget units. Significant progress could be achieved as regards the design of information systems and the development of evaluation and projection techniques, so as to broaden the spread of options and spell out the alternatives before the political leaders in greater detail.

The results of this stage may remain somewhat vague or implicit if there is a likelihood of encountering hostility (on the part of personnel responsible for execution, heads of establishment and teachers, students, etc.), and if politicians are concerned to maintain sufficient room for manoeuvre (either for subsequent negotiation or in the implementation phase). This is one of the reasons why plans either neglect or remain vague about certain sometimes important aspects of educational development.

2. The budgeting process

After examining the process whereby medium-term objectives are determined, it would be useful to analyse the budgeting process, owing to its importance and to the contradictions that can arise between budget and plan.

The budgeting process may be taken as the series of operations that begins with estimating funds required for the coming year (as regards current expenditure) and ends with the mobilization and subsequent utilization of the corresponding financial and real resources. The terms 'beginning' and 'end' are used here for the sake of convenience, but also because the budgeting process occurs within a precise time-framework. It is worth recalling, in this respect, that the educational system's current activities and corresponding expenditures also, for the most part, follow an annual pattern not always consonant with that of the budget. The capital-spending budget, meanwhile, is sometimes the subject of a separate negotiation process, generally concerning the pace of execution of a multi-year programme.

The importance of the budgeting process in the planning process has several reasons:

—Once approved, the budget represents a *mandatory document* for educational officials;[1] generally speaking, monies earmarked for expenditure can

1. In the centralized countries, this will be the education ministries. In the rest of this paper, we shall use this term for the sake of convenience.

neither be exceeded nor transferred from one item to another. The ministry thus finds itself hemmed in by relatively precise limitations on its activities and hence on its scope for decision-making. In market-economy countries the plan does not have the same power of constraint, by giving the decisive influence to budget decisions (even where these diverge from the plan).

—The crisis, or at least major slowdown in economic growth, in many countries over the last few years makes it very difficult to formulate acceptable forecasts of public resources over a time-span of more than one or two years. Preparing a medium-term plan (4/5 years) has thus become a riskier undertaking than in the past, even if it is still necessary in order to provide some framework for educational development. In this situation of 'feeling one's way forward' the budget process may play a more important part than at other times. It may even happen—when government revenues fall short of forecasts—that the financial authorities (the Treasury) will clamp down on ministry spending-authorizations and prevent it from executing its budget as originally approved.

—Budget negotiation between the Ministry of Education and those of Finance and the Plan is a confrontation of supply and demand for resources: the approximate overall amount available is always communicated to the Ministry of Education in advance, by one means or another. The Ministry's own demands are to a large extent influenced by this figure, and are therefore not merely the outcome of an independent estimate of its financial needs as entailed by the development of the educational system. This demand is itself an endogenous variable.

—Even if we may suppose that certain decisions are not dealt with in the budgeting process, or are left largely to the discretion of education officials after budget approval, the fact nevertheless remains that most important decisions concerning educational development are affected by the budget negotiation process. This question deserves more detailed examination.

We have just stressed the importance of the budgeting process in connection with decisions relating to educational development; but this process is also highly important for the actors themselves. So we cannot study budget negotiations and subsequent implementation from the point of view of the information used, choices of techniques, arguments stated and communication procedures employed, without also taking into account the interests of the actors concerned and their respective powers.

To appreciate the characteristics of the budgeting process more fully, it is worth outlining its principal phases. This should help us to understand the issues, the behaviour of the different actors and the way in which the process itself unfolds. This presentation will describe the particular aspects of the budgeting process that concern current expenditures in those countries in which the control and financing of education tend to be relatively centralized, but this will only moderately restrict the validity of the more general aspects of the analysis. It does not mean that we can neglect processes relating to the capital-investment budget.

Generally speaking, we may identify three important phases in the budget process: (a) preparation of the draft budget prior to political negotiations and negotiations with the Ministries of Finance and Planning; (b) budget revision, once overall expenditure figures have been approved (as well as major items, in certain cases[1]); (c) budget implementation, and in particular the mobilization and distribution of real and financial resources for activities.

The preparation of the budget always involves, either explicitly or implicitly, an estimate of the ministry's unavoidable expenditure commitments *(depenses acquises* in French terminology, or 'irreducible spending' in Mexican terminology).

This concept flows from contractual aspects of the ministry's commitments; in general, committed (current) spending for the following year will be greater than the corresponding figure for the current year (even taking inflation into account), which puts education officials in an awkward position in budget negotiations. In fact, negotiations deal only with the margin for real growth in the budget, and thus apply only to marginal resource-allocation. Even a small narrowing of the margin of real growth can have major consequences on new ministerial decisions.

Evaluating unavoidable expenditure commitments calls for a good information system, and it is important for the ministry to be able to justify its estimate when dealing with the Ministries of Finance and Planning. It should therefore use its own information system (and not that of the Ministry of Finance, as happens in certain countries).

The preparation of the draft budget involves a long series of negotiations and adjustments between the ministry and other institutions in the educational sector, between the different central departments of the ministry and, lastly, between the ministry and its territorial subdivisions. From the standpoint of educational planning, what is at issue is the allocation of new government credits by level and type of education, by territorial subdivision, and by type of expenditure. From the point of view of the actors and their interests, what is at stake is rather the apportionment of spending by institution, department, association (teachers' union, private education, etc.). The explicit (or ostensible) rationale behind the negotiations centres on the objectives of educational policy (as specified in the plan), whereas implicit expectations are shaped by the interests of the actors (among whom the bureaucracy, in the broad meaning of the term, weighs heavily). The relative importance of these two rationales and their impact on the negotiating process and its outcome depends on a great many specific factors in the socio-political, administrative and cultural context of each country. The main decisions made by educational policy-makers will be affected by their assessment of the forces involved; the less important choices will to a large extent depend on the correlation of forces inside the bureaucracy

1. The revision may be fairly limited in the countries where the finance and planning ministries issue very strict preliminary directives concerning overall spending limits.

(and particularly on the different actors' ability to appeal against a decision to some higher echelon in the hierarchy) and on their ability to present a well-argued case consonant with the explicit rationale. This is where information, techniques and procedures of communication come in, each actor seeking to use them in his own interests. The fact of being in possession of relevant and reliable information clearly represents an essential strength in this respect. This may go a long way to explaining certain problems of communication where information is concerned.

The aim of revising the budget ('budget re-programming') is to adjust draft budget figures to the approved financial ceiling. The adjustment process entails a fresh round of bargaining, dealing principally with growth on the margin and capable of having a significant effect on new decisions. Which priorities and criteria, explicit or implicit, are finally selected? To what extent do cuts affect the very objectives of certain projects or activities, their implementation procedures or scheduling over time? How can these new decisions be analysed and evaluated in the light of educational policy? This phase is plainly at least as important as the preparation of the draft budget.

Budget implementation, like the earlier phases, needs to be analysed from the twin standpoints of *real* and *monetary* resources. The most interesting aspect of this phase is the mobilization of new real resources (personnel, equipment, school buildings), their allocations (by territorial subdivision, by establishment) and the redeployment, where this happens, of real resources already mobilized. The relevant decisions are usually taken at the beginning of the school year, when two intimately related processes occur: (a) the adjustment of educational demand and supply at the institutional, regional and nationwide levels; and (b) the adjustment of available resources to enrolments (distribution of resources among educational institutions).

Budget implementation (particularly current expenditures) is closely bound up with the organization of the beginning of the school year.

In practice, a large number of obstacles arise during this phase; these stem from problems of power (with each administrative-institutional level seeking to maximize the resources allocated to it, resulting in familiar behaviour patterns), from insufficient local administrative control, from problems of access, transmission delays, etc. Studies performed by the IIEP on school costs in a number of different countries have clearly indicated the consequences of this last phase on the resources available to establishments and on their utilization.

All in all, the budget process could be significantly improved by reinforcing the information-base used in each phase, by more precise calculation of irreducible spending commiments, by improved techniques for estimating expenditures, by a clarification of re-programming methods and by studying conditions for improving budget implementation, particularly as regards the allocation of resources to educational institutions prior to the start of the school year.

3. Execution and monitoring

If planning is regarded not merely as the preparation of a plan, but also and above all as the formulation of a strategy for the implementation of that plan, then implementation may be regarded as its key phase. In fact, it is during implementation that objectives are put to the ultimate feasibility test. All too often, however, the connection between planning and implementation remains the weak link, the 'achilles' heel' of the entire process.

As long as the expansion of the educational system remained the overriding concern, it was possible to get by simply by doing the same thing only on a larger scale, even if increments in size raised problems of management and implementation of their own. But as this expansion was taking place, people became increasingly aware of the accompanying problems, whether those connected with the possibility of orientating and controlling this expansion itself (particularly as regards the rate of growth of the different levels and types of education) or concerning the effectiveness of the educational system (from the point of view of both the adequate utilization of resources and the results obtained) or the extent of disparities. These new problems gave rise to certain reforms, which in certain cases seriously complicated the task of making the plan operational and implementing it, by confronting planners and administrators with entirely new situations.

Execution raises the problem of the administration's ability *to act* in an environment made still more complex by the multitude of actors involved (administrators, teachers, students, parents). The successful implementation of a plan (or reform) thus depends not only on the 'docility of the administrative machinery' but also on the 'degree of acceptance' on the part of those directly or indirectly involved, and of the scope for implicating them, in other words, of 'getting them to participate in the implementation process'.

Making the plan operational depends to a large extent on the way in which the plan was formulated. This cannot however be confined to translating (by technocratic procedures) objectives into terms of programmes and projects, mainly at the central-government level. This is made all the truer by the fact that these programmes and projects may differ in the extreme: the generalization of primary education and the adaptation of vocational and technical education to the needs of the productive sector obviously present very different problems in terms of implementation.

To make the plan operational one must therefore also take the organizational environment into account, and particularly the interests and the opinions of the leading actors (administrators, teachers, etc.), and their ability to perform the different tasks involved. Many reforms with ambitious targets have in this way become reinterpreted and turned into insignificant programmes. Nor should we neglect the general economic environment in this respect, which often affects the implementation of these programmes.

How are we to get round the inertia of the administration, or overcome its ability to re-interpret programmes and plans according to its own rules and

convenience? Should projects be made more specific and instructions given in greater detail and made more circumstantial for purposes of implementation? But is it possible to forecast exactly all the resources necessary, and above all the conditions necessary to their timely mobilization? Is it possible to anticipate all the direct and indirect effects of these measures? Or would it be preferable to move in the *opposite direction* and seek greater involvement on the part of intermediate and local echelons, or of other actors, by giving them greater initiative to adapt projects to the specific characteristics and conditions of their region? Experience shows that this deconcentration, or decentralization even, can be problematic, and results have not always been successful. One can point to a host of technical and material reasons for this (lack of resources, shortage of skilled personnel working at the regional and local echelons, difficulties of communication, etc.). However, these reasons do not appear to be really *determinant,* and the chief explanation could well lie elsewhere, namely that any kind of deconcentration or decentralization or indeed any increase in the degree of participation by intermediate actors involves a certain redistribution of power within existing structures, and that the demands of any such democratization are bound to encounter serious obstacles.

In addition, the very fact of leaving greater powers of initiative to regional or local bodies means that more attention must be given to problems of coordination. This is where monitoring and evaluation can take on a new dimension or added importance. It should therefore take the form of a 'learning process', designed to draw a clearer picture of the problems encountered and to benefit from past experience. All too often, however, monitoring and evaluation are restricted to the most visible and most general aspects. They focus on implementation schedules and the extent to which quantified targets are met. But they very rarely permit an explanation of what has happened and why, although these would be extremely useful in helping to redirect projects in good time, to improve the implementation strategy, and possibly even to modify objectives. This situation is the outcome of many factors, including:

—the information used is rarely designed, in the first place, to meet evaluation needs;

—the people responsible for evaluation are not always thoroughly grounded in the requisite concepts and analytical methods;

—resistance on the part of the people and institutions concerned by *evaluation* restricts the scope of the analysis and leads to very general, but not very informative assessments;

—these same internal resistances sometimes succeed in distorting the evaluation itself, turning it into a means of reinforcing the position of a specific project rather than an instrument for improving the working of that project.

Whether we consider the way the plan is operationalized and its translation into practical measures, or the search for greater involvement and broader participation on the part of those concerned by implementation, or whether, lastly, we consider the monitoring and evaluation processes as defined above,

the fact remains that existing studies are either very general, or on the contrary highly specific, focusing on a precise situation or on a particular project. This domain does therefore deserve to be explored, and studies focusing more on the needs of planning could very likely make a significant contribution.

C. Re-evaluation of the utilization of techniques, and improving the information-base

In the foregoing presentation of the planning process particular stress has been laid on problems of communication and negotiation, in which the *techniques* used and the *information* generated by or associated with these techniques obviously play a key rôle:

—in the identification of problems relating to the development of the educational systems;
—in the choice of objectives to be achieved;
—in the definition of the phases by which these objectives are to be achieved;
—in negotiations concerning the allocation and utilization of financial, human and material resources;
—in the preparation of programmes and projects;
—in their translation into operational terms and their implementation in the field.

Over the last two decades the broadening of the scope of planning and its generalization in a growing number of countries has entailed the development and gradual refinement of a wide variety of techniques (chiefly techniques of projection and analysis, evaluation and monitoring); in many cases, these have reached a degree of sophistication that calls for increasingly more abundant and more detailed information for their use.

Through its own research and training programmes, the Institute has contributed to the development, dissemination and operationalization of some of these techniques, paying attention to the specific contents and characteristics of each of the countries concerned. Among others, the Institute has studied the relations between education and employment, the analysis of costs, the preparation and implementation of the school map, and the reduction of regional disparities.

Alongside these essentially quantitative techniques, which mainly concern the preparation of the plan, other techniques or other methods more concerned with the formulation of educational policy (upstream), and with problems of implementation (downstream), are now entering into use in certain countries. In general, these techniques are designed to broaden participation, whether in the form of consultation, seen as an instrument of 'public participation in the formulation of educational policies', i.e., in the last analysis, as an instrument of 'participatory control over knowledge-related resources by those who are generally deprived of them', or whether it involves sensitizing public opinion and providing leadership, or again communication, particularly links between the world of research and the policy-makers.

These techniques are still relatively little used, of course, and our experience of them is still limited and of recent origin. However, their potential rôle in the planning process is an important one. They consequently deserve to be studied in much greater detail.

1. The utilization of techniques

The prime objective of re-evaluating techniques is to improve planning in practice. So the first need is to see how these techniques are employed in practice. To be meaningful, re-evaluation must refer to a given country, i.e. to a specific context and particular situations.

This re-evaluation may be conducted on a number of different levels: (a) the techniques themselves, and particularly the implicit assumptions on which they are based; (b) the conditions surrounding their use in the field; (c) the impact of their utilization on the planning process and its outcome.

(a) The implicit assumptions underlying techniques

Whichever technique we consider, it is based on implicit assumptions and indirectly incorporates certain norms and values. No technique is neutral, in this sense. These techniques may subsequently be improved and refined without any change in their implicit underlying assumptions. It sometimes happens that models presenting a very highly complicated degree of formalization, comprehensible to initiates only, are in fact based upon very simple, if not to say simplistic, assumptions, regarding the actors' behaviour patterns.

The familiar opposition between the manpower-requirements approach and the cost/benefit-analysis or rate-of-return approaches thus flows from their implicit underlying assumptions, especially regarding the workings of the labour market and the behaviour of employers. It should also be said that these implicit assumptions can sometimes give rise to misunderstandings, either because too much is expected of a given technique (more than it is capable of offering), or because one does not understand its real usefulness. In another context, the introduction and generalization of the school map rests on the assumption that universal schooling can be achieved by means of measures concerning educational supply, involving in particular a reorganization and extension of the school network. It rests also on the assumption that the reduction of inequalities of access and in the quality of educational services is a priority objective. So a re-evaluation of the utilization of techniques involves analysing the compatibility between these implicit assumptions and the political, economic and social context of the country being studied.

(b) Conditions surrounding the utilization of a technique

The generalization of a particular technique raises three problems: (i) the competence of those required to use it; (ii) the availability of the information needed for the use of this technique; (iii) as well as certain pre-conditions

relating either to the national context, or to the organization of planning and its means of action.

In this way, while the training and stability of personnel is a key aspect, it is by no means the only one. The absence of reliable information can seriously hamper the use of a given technique. To give but one example, in addition to its often-mentioned imperfections, the manpower-needs projection technique is scarcely applicable, for want of information, outside the structured sector of the economy, which in many of the developing countries concerns only a minority of the working population. Seen from another angle, we may also say that manpower-needs projection techniques fail to take explicit account of all the demands imposed by a technology-development policy. In any case, this technique is of no use in estimating the training needs of people who are obliged to seek work in the so-called non-formal sector or in rural areas.

Concerning the requisite pre-conditions for the utilization of a particular technique, reference to the very concept of microplanning should be enough to indicate the various consequences that can ensue concerning the rôle of the local level and its involvement in the planning and decision-making process.

(c) Impact on the planning process

Measuring the impact of the use of techniques on the planning process raises awkward problems to which there are no obvious simple solutions.

To begin with, the introduction of a new technique very probably entails a change in methods and, consequently, in the organization of planning, possibly with the creation of new echelons or intermediate bodies. The training programmes likely to result from the introduction of this technique are designed to improve the skills of those involved in the planning process. The information required for the use of this technique (and which needs to be collected) can help to broaden the information-base and thus clarify certain problems and situations. These resulting changes can have important and lasting effects, transcending the introduction of the technique itself.

On the other hand, however, the introduction of a particular technique in no way guarantees that the hoped-for results will be fully achieved, precisely because these results depend not only on the utilization of the technique, even if this is applied correctly, but also on other factors not controlled by the planning process, or not completely so. Often, too, the solution to the problem is assumed to have been found already, and the technique is restricted to forecasting the consequences of its application, and in particular the resources that should be mobilized. Such feasibility studies do not prove that the recommended solution is the one best-suited to the problem under consideration. The risk is greater still when dealing with problems of the 'wicked' type.

2. Re-examination of the information-base

Apart from the utilization of techniques, it is also worth taking a fresh look at the information-base used in educational planning. Most countries have a

statistical office more or less integrated into the department responsible for educational planning. Frequently, and appearances notwithstanding, this office occupies a minor status, with limited resources and a routine restricted to the gathering of statistics on the most obvious and easily measurable aspects of the educational system, and to the publication of official educational statistics with more or less delay. It is only made use of from time to time, notably during the preparation of the plan. People then realise that the information available is not always relevant to the problems and concerns of planning. So an *ad hoc* information-gathering exercise is organized. More often, other departments of the ministry also use their own facts and figures, gathered by their own units. It is hardly surprising, therefore, that many countries have no really reliable information-base, suited to the needs of educational planning and administration, and easily accessible to those likely to have need of it.

In actual fact, any improvement in the information-base is heavily dependent on the conception of the rôle of information itself in such different fields as the selection of major orientations in the initial stages of the planning process, budget negotiations, the monitoring of the plan, or of the evaluation of the implementation of programmes and projects. The information-base needed is thus determined by the characteristics and scope of educational planning.

So it seems to be rather illusory to try, as some have, to draw up an inventory of necessary or useful information in general, regardless of the country concerned. On the other hand, it might be possible, in a given country, and with reference to its educational-policy objectives, planning methods and process, to endeavour systematically to identify the potentially indispensable types of information. This would very likely show that much of the information required goes well beyond mere figures and may even involve aspects outside the educational system, notably those relating to the economic, technological and social domains, while having a direct bearing on education.

(a) Information on the educational system

The analysis of the planning process outlined above shows how important information can be, especially in budget negotiations and the monitoring of implementation. The essential condition of effectiveness is that this information must be credible to the different categories of actor. This in turn means that information must be reliable, up-to-date and relevant. This demand for high-quality information gives some idea of the nature of the effort required.

On the subject of relevance, a re-examination of the types of information really necessary in planning, in the broad sense of the term, would appear to be wholly desirable. However, this re-examination cannot be left entirely to the officials responsible for information-gathering. It needs to involve all those who use and need this information.

To go gradually from *ad hoc* evaluation, performed intermittently, chiefly during preparation of the forthcoming plan, to a fully-fledged monitoring of the strategy for implementing the plan (which would in fact take the form of 'learning' about the problems of implementation), it will be necessary both to

broaden the information-base and to provide for continuous processing of this information for it to be really useful.

Improved reliability and faster availability of information represent a further field, involving all the different operations that an information system entails, from the design of instruments and methods for data-collection to methods of presentation and dissemination of information.

(b) The use of other categories and sources of information

The broadening of the scope of planning, the newly-emerging concerns, notably the inclusion of the requirements of technology-development policy on the one hand, and the diversification of educational activities on the other, discussed in detail in the earlier sections of this document, imply more systematic use of categories and sources of information outside the educational system, including research. Some of these activities are partly new, and many Education Ministries' research and statistical units are not always ready for them. The case of Thailand, where considerable efforts have been made to establish continuous relations between research, educational-policy formulation, planning and implementation, is the exception rather than the rule in the developing countries.

(c) The organization of the information-base

The extension of the information-base, the additional data resulting from monitoring of the plan's implementation, the use of categories and sources of information outside the educational system, all require more rigorous organization of the information system, with particular emphasis on better filing designed for faster information-retrieval, in the form suited to, and analysed in accordance with, the user's needs. A tremendous effort remains to be made in many cases, in this respect.

On the other hand, there is frequently considerable wastage of information, particularly in evaluation, but not there alone, because the different units, agencies or institutions organize their own *ad hoc* information-gathering activities, without any co-ordination and still less a clearly-defined strategy. This retention of information, for the benefit of a single category of user, makes it difficult to form an overall view of the different problems involved in implementation.

Electronic data-processing can make a significant contribution to the organization of any such information system, thanks to rapid progress in recent years both in hardware and in data-bank management software. Computers as such, though, are no panacea. They contribute little, and only very indirectly, to improving the reliability and relevance of information. In addition, they necessitate handling skills that not only present problems of organization and training but also, in addition to economic problems, require a fairly radical change in working methods and on-the-job learning through experience. And it often takes longer than might be expected for staff to familiarize themselves with the system.

To conclude, both as regards the analysis of planning processes, re-evaluating the utilization of techniques or improving the information-base, the studies envisaged must be based on the concrete situation in a given country, owing to the importance of the national context and its specific characteristics.

For the sake of clarity and convenience of presentation, we have dealt with processes, techniques and information separately, even though these three areas are obviously very closely related. While a particular study may lay greater stress on one of these three fields, the other two can not be ignored. For example, it would be difficult to analyse processes without referring to techniques and to the uses of information. Conversely, a study on improving the information-base must inevitably refer to the planning process.

In order to draw the appropriate lessons from these studies, it will be necessary to investigate fairly contrasting situations. Selecting the countries in which to perform these studies therefore represents a crucial problem to be pondered, deserving detailed discussion by the seminar.

PART TWO

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Report of the working group on Theme 1:

Educational planning and technological development

Chairman: H. Babassana
Rapporteur: J.L. Reiffers

A. Introduction

Examination of the state of educational planning against the background of the present world crisis and of the specific crisis of development models calls for a profound re-examination of the assumptions and methods that have been used in the past. Without questioning the progress that has been achieved in efforts to forecast manpower requirements, and without underestimating the importance of the results achieved—generally speaking, we may regard forecasts as having been suitably relevant—it is now necessary to undertake additional research, owing to extensive disruption in the world-wide process of accumulation and to the speed at which technological change is now taking place. The latter probably represents the principle around which the world system is likely to be restructured. Since the production of scientific knowledge and technology is very largely in the hands of the most developed industrial countries, there are grounds for fearing that, with the exception of a handful of developing countries, the hierarchies of production will accentuate the dependence of the developing countries and reinforce their submission to a technical logic whose coherence is totally beyond their grasp. Even apart from the need to re-equilibrate the relative position of these countries, they must be able to take an active part in scientific and technological production in so far as the latter is incapable of resolving the crisis unless accompanied by a concomitant transformation of regulatory patterns and life-styles. On the latter point, the developing countries obviously have as much to say as the industrial countries, given the size of the populations concerned. So this accession to technology is indispensable to any rethinking of educational planning, even if technological training strictly speaking represents only a relatively small proportion of the training currently being dispensed by national educational systems. But this is not to say that the developing countries ought to acquiesce in a passive functionalization, obliged to choose a type of educational planning dominated by the manpower requirements that flow from such policies as may be applied to the evolution of their productive system. The research in question needs to spell out the relations between society and technology within the educational

system under consideration in all its functions, particularly its cognitive, cultural and social functions.

B. The methodological dimensions of the problem

The working group's discussion focused principally around methodological questions relating to the way in which relations between scientifico-technical trends and society ought to be examined, and around the consequences that this approach might have for the conduct of educational research.

1. The need to reason in terms of the relations between scientifico-technical trends and society

The first point is to recognize the existence of a world-wide logic of accumulation which ranks national productive systems in a hierarchy and produces an international division of labour, in which certain countries tend rather to assume responsibility for conception, the others being given the task of execution. Science and technology play a central rôle in this mechanism, in so far as they entail a system of work through the agency of qualifications. Trade in technology is a relation of power, for it concerns knowledge and is carried out by actors (multinational firms, governments, who possess means of constraints upon societies).

While science is unambiguously universal in essence, technological knowledge is necessarily more differentiated. Concentrating exclusively on the technical system, we are bound to note its wide internal diversity (sectors, segments of sectors, etc.) and the multitude of combinations of qualifications corresponding to each technical sub-system. Furthermore, the notion of qualification itself is ambiguous, in so far as it concerns standardized labels that are not particularly meaningful in specific local circumstances. The important notion is that of skill, which expresses professional capacity to perform one or more crafts or trades, and which becomes qualification as a function of different forms of labour organization.

While society may have little control over the transformation of scientific knowledge, it may on the contrary exert considerable influence on technology. This flows from the very nature of technology, which cannot be conceived and produced in isolation from the social conditions in which it is applied. It will be noted moreover that in a homogeneous social environment, such as the army, the dominant technology has no trouble imposing itself. These social conditions, while determining certain forms, will also influence its effects. From this point of view, capacity to dominate technology is a factor of social differentiation which may undermine traditional power in certain micro-societies. Elsewhere, the practical application of a technology may be the outcome of the labour collective's demands on scientific knowledge. Lastly, the way in which technology is integrated into a society will largely depend on government voluntarism and in particular on its industrial policy choices.

It flows from the above remarks that there is a need to avoid two kinds of bias: the universalist bias which consists in thinking that all technologies are world-wide and must be applied in standard segments to a society according to its objectives and resources; and the spontanist bias which more or less views society as totally free to make whatever technological choices it wishes. The problem facing research is to understand the field of possible societal transformations and innovations, given that scientific knowledge is universal in essence in any case, and that some portion of technological knowledge may only to a small degree lend itself to transformation. One important point in support of some measure of technological autonomy is that, in many modern sectors of the economy, technological knowledge can develop in the absence of complete mastery of scientific knowledge; the experiences of India and Japan are enlightening from this point of view.

2. The consequences for research on educational planning

The educational system will in future be heavily influenced by training requirements relating to deliberate governmental decisions on industrial and agricultural policy. The educational system will be called upon to meet new manpower requirements, and planning will be expected to identify them while at the same time evaluating the capacity of the educational system to meet those needs within a reasonable space of time. It is going to be indispensable to raise technical standards, regardless of how technology is integrated into society. This is clear when dealing with the production of a specific technology, but it is also true even when a country is content to import technology: after all, it is necessary to negotiate the purchase of the technology, to understand it, to put it into application, operate it and so prepare for the transition to relative technological autonomy.

We need to be wary, however, of supposing that the educational system takes scientific and technological process as something external to itself, and that it alienates its other functions to the benefit of its contribution to production. Several members of the working group expressed convergent views on this point. It was first pointed out that one needs to reason in the wider context of relations between education and society. In this respect, it is worth looking into the rôle of the State, where the latter seeks to channel certain sections of civil society in the direction of economic efficiency at the risk of satisfying only certain highly specific segments of social demand. From the point of view of education, this carries with it a risk of neglecting the essence of its social function and forgetting the specific characteristics of the educational system itself. It was further pointed out that there is a need to distinguish between training and the education of the citizen, which is possibly the primordial function of the educational system. Lastly, it was pointed out that by seeking to coerce an educational system into meeting manpower requirements, there is a risk of destroying its organizational coherence and disrupting it, with the obvious proviso that coherence itself should not become a major obstacle to achieving society's chosen objectives.

These considerations led the working party to recommend a programme of comparative research over a sufficiently long period to evaluate patterns of transformation of the educational system, with reference to its structures and organization, as related to the country's evolving mode of insertion into the international division of labour (which will be characterized by changing the degrees of autonomy and dependence).

Studies of current experiences have revealed the limits to the autonomy of planning in regard to education and industry. Any industrial plan implies the establishment of its social bases, of which the educational system is a central element. So research on educational planning should not therefore confine itself to asking how to produce mechanical responses to the requirements laid down by an industrial or technological imperative in itself. What is needed rather is to devise a way of acting deliberately upon industrial and educational structures so as to alter the terms of their coherence by simultaneously transforming their manner of educating and their manner of producing. So there is a need to reflect rather on the structural homologies required than on ways to adapt the supply of training to the demand for manpower.

C. Themes for examination in greater depth

The working party proposed several new themes for reflection to complement or spell out in greater detail the concerns of the Institute.

1. International division of labour, technical change and the quest for autonomy

The customary analyses of the international division of labour must be studied in greater depth in view of the breakthrough of new technologies. The reasoning of the 1970s, which was based on the rôle of producer goods, is now in need of revision, and it may be necessary to downgrade the rôle of engineering in the international division of labour as between conception and execution. The new technologies modifying the production process operate horizontally on all branches of production. Automation reintegrates the problems of management and maintenance, and is producing far-reaching changes in the organization of labour. This provides one explanation of the recentring of direct investment on the industrial countries. This then raises problems as to whether the past relationship between the production of producer goods and technological capacities will reproduce itself in the future, whether some decomplexification of production units may not be feasible, or whether there may not arise some partial articulation between tasks of conception and tasks of execution outside the broad trends in the international division of labour, thereby pointing the way to local solutions for the developing countries. We also need to take another look at the hierarchy of producer goods-intermediate goods-consumer goods, and ask whether there may not be an increasingly frequent flow of

technologies upwards from intermediate goods to producer goods, and even from consumer goods to producer goods. It is important, in this respect, that research should bear in mind the experience of those developing countries that have imported technology on a large scale.

From the point of view of trends in work organization, apart from the evolution of traditional qualifications we are witnessing a recombination of knowledge based on multivalence, the emergence of neo-trades, and a shift in the fields of labour organization. All these trends need to be studied in greater depth in order to understand the consequences of the development of new technologies on systems of knowledge.

The rôle of firms, particularly transnational ones, as a sphere of manpower management, of the constitution of the labour collective, and more generally of socialization, also requires fresh examination. It does indeed look as if inter-subsidiary relations within the perimeter of the firm (which is becoming an increasingly socio-culturally homogeneous decision-making sphere) have a decisive impact on the evolution of the system of work, and, beyond that, of the training system.

It is necessary moreover to reason in terms of dynamics, in order to gain an idea of the thresholds that lead from one technological stage to another, and to differentiate carefully between products according to their rate of technological renewal.

Lastly, there is a need to explore the new forms of dissemination of technology, and in particular to study the consequences of the group contracts that certain countries have signed with consortia of different firms for the performance of an integrated operation. There is also a need to appreciate the different lengths of time taken to assimilate a technology, and the patterns and rates of substitution of a national technology for an imported one, this substitution being taken as an indicator of technological development.

2. The diversity of educational responses

Analysis of past and present experiences has shown that educational systems have played a positive rôle in technological development, though in very different ways. In some cases, a sound level of basic education has permitted technological advances at least as satisfactory as in other countries where training has been defined in more vocational and technical terms. This observation shows that everything hangs on the relation between the educational system, the industrial system and society. A sound general education may be highly favourable to technological development if employers organize on-the-job training over a suitable period of time and on the basis of satisfactory labour relations. Similarly, vocational training provided by the educational system may prove equally effective provided employers are consulted on its content and acknowledge it. There is a need for research into different organizational combinations for different branches and countries.

The question of relations between general and vocational education was

raised on several occasions. The discussion showed that there was a need to reflect on ways to make general education more receptive to technical culture. It was also suggested that there was a need to investigate further the type of education best-suited to on-the-job learning, particularly in cases of repeated technology imports. It was stressed moreover that intellectual exchanges and opportunities of discussion were indispensable in view of the nature of scientific work, and that these would help to limit the brain drain. The rôle of research centres in countries' experiences, and notably their rôle in the training of instructors, was also thought to be decisive for the dynamic linkage between technological research and technological education.

Where resources are scarce, a recommendation was made to identify areas of comparative advantage on which to focus efforts, and not to hesitate to import knowledge for the other sectors provided that this was carried out within the framework of relations of equal exchange, which need not necessarily be reproducible. The question also arose as to the critical size of certain training operations and regional areas in which they might be carried out, and as to the utility of reasoning in terms of scientifico-technological regions, particularly in the case of the developing countries. More generally, while everyone present accepted the need to exchange complete technological modules, they agreed that the main issue was to identify those experiences that have avoided repeated imports and have succeeded in substituting local creativity for imports while preserving a measure of coherence in the educational system.

On this last point, and in view of its relations with Member States, it was felt that the Institute could help to generate a new flow of information and knowledge, and contribute to its dissemination.

While all the foregoing questions concern both industrial and agricultural systems, inasmuch as the notion of technological development as discussed here encompasses both state-of-the-art advances and more commonplace tools, it is nevertheless worth detailing two aims that apply more specifically to predominantly agricultural or handicrafts-based rural systems. The first is that of their contribution to their self-sufficiency in food, while the second concerns the impact of technology on capabilities in respect of the reproduction and evolution of integrated systems. The research programme should investigate the type of education (and its appropriate planning) which would render these two objectives totally compatible, which is something that cannot be taken for granted in the light of past experience. This then raises with still greater acuity the question of the social conditions in which a technology is integrated into a rural environment, and in which traditional technologies are reproduced and promoted. Furthermore, the Institute's research should also yield two further types of decisive contribution: the first would help decision-makers in framing global, integrated technologies and educational plans, while the second would provide a coherent articulation between basic and applied research in agriculture, which is indispensable, and the raising of the general technical and educational level of the rural population.

Report of the working group on Theme II:
The diversification of the educational field

Chairman: Danilo Jimenez Veiga
Rapporteur: David Evans

A. Introduction

The working group chose to examine the broad context within which the diversification of education has taken place. Discussion thus sought to generate an understanding of the nature and rôle of diversification and the possible range of planning options which exist in relationship to it. The group recognized that IIEP would have to select a small sub-section of this field in which to focus its efforts, but chose not to make specific recommendations. The discussion did make clear some of the options, and the pros and cons associated with them.

This report, which summarizes the efforts of the working group, is divided into four sections: the nature of diversified education; basic education; diversified education for rural and industrial development; and planning issues.

B. The nature of diversified education

Planning must proceed from an understanding of the activities which are to be planned and from a systematic data-base about those activities.

—The diversification of education is a well-established fact of life in both developing and developed countries. In many countries, the non-formal education sector is explicitly recognized as part of the legal structure of education. The scope and level of these activities is growing rapidly, and demands for co-ordination and some form of planning are increasingly heard.

—The field has been extensively studied in the past decade and numerous classification schemes and typologies have been put forth. However, they are generally not useful to policy-makers, who need data organized in ways which address decision options. Yet some scheme of grouping widely diverse activities is necessary for any kind of meaningful research or planning process.

—The introductory document proposes a split into basic education, industrial skill development, and skill promotion for rural areas. The group felt that

more meaningful groupings were possible which used criteria relating to the function played by the activity and a clear understanding of the forces and the organizations which created the activity in the first place. Many criteria were suggested: it was agreed that all dimensions needed to be taken into consideration, with priority given to the categorization which was most functional in assisting policy-makers.

—Recently, a variety of organizations have undertaken inventories of non-formal education activities in certain countries. Methodologies have been developed and tested and some preliminary results are now available. Debate centred around the desirability, the necessity and the cost of doing such studies. We are fortunate to have a number of these which IIEP can analyse both as to content and method, while avoiding the cost of carrying out new ones themselves. New inventories are perhaps not needed where sufficient information exists: there IIEP can concentrate on making more abbreviated lists which will form the basis for a sampling of activities for detailed study. In a few settings, fuller inventories may be needed to understand the scope of the diversity more clearly.

—There exists a considerable body of literature on non-formal education projects, and in particular some extensive case studies drawn from all over the world. IIEP might begin with this material and then, having identified some key questions, could undertake detailed analysis of selected projects, trying to answer questions which have not been adequately studied before. Such questions would include some of the following:

(a) Who benefits from the programme? What are the specific impacts on the individual learners?

(b) Does the programme lead to employment, to increased income, to improved quality of life?

(c) Does the programme reduce inequities in access to learning opportunities, to resources, to employment and further social promotion?

(d) What are the costs and how do they compare with alternative means of achieving similar goals?

(e) What are the social benefits associated with these costs?

(f) What are the social and political forces which underlie the creation of the programme? Does its existence improve the leverage of a particular group on national resources and opportunities?

(g) What would be the positive and negative results of government involvement in the programme?

Participants stressed that any detailed studies must include a judgemental component to be of use, but also agreed that such evaluative actions must be seen as useful and needed by the people running the programme in order to secure their co-operation.

C. Basic education

The heart of this topic is the desire to provide a minimum core of skills and knowledge to every citizen as a matter of basic human rights and as an essential pre-requisite of development.

Lengthy discussion highlighted the following general characteristics of reality in most developing countries:

—A belief that basic education must provide learners with not only the essential skills, but also the ability to understand their milieu and to participate in the process of changing it for the better.

—Reasonable-quality primary education in schools is available to only some of the school-age children. Despite significant efforts at expansion and improvement of quality, this will remain the case well into the next century.

—Schools have a dual rôle: transmission of knowledge and skills, and selection of a small minority for transition to higher levels of schooling and eventual access to the modern sector of the economy. The latter function tends to take priority in nearly all settings and dominates the expectations of parents and communities who support the schools.

—Diversification of education is in part a response to the need for those without access to schooling to participate in the life of the nation. However, non-formal education lacks the power to accredit people and generally does not allow them to transfer into the formal education system, although it may give them needed skills and knowledge.

—While much of non-formal education complements the primary-school system and tries to serve those not reached by schools, there are important kinds of non-formal education which serve quite different purposes and which can never be replaced by schools as they exist today. This includes programmes which serve women, mothers and young children, adults, and whole communities which are disenfranchised or otherwise in low-power positions in their nations.

The existing range of diversified educational activities gives rise to a number of policy and practical issues which must be addressed:

—There is an inherent duality which must be considered. Non-formal education does not have the power to select and promote learners in ways which the school does. However, merely extending schooling to everyone, even if that were possible, will not solve this problem—it merely shifts the issue to one of differences of quality between schools. The inequalities will continue to reflect more basic underlying differences in access to resources and power in the nation.

—Non-formal education is *not* just a response to deficiencies in the formal school system, although parts of it do address that problem. There will remain a need for diversified forms of education even after a good school system has been created.

—There is a developmental time sequence. The rôle of non-formal education will expand and contract during different phases of development. Rôles will

be shared with formal education and passed back and forth between them depending on circumstances and resources available. There is no fixed desirable pattern. Both will influence each other. Both are part of the overall education sector.

Parts of non-formal education will probably always remain outside of government sponsorship and control.

—Bridging mechanisms can be used to reduce the degree of duality. Certification and equivalency-testing measures are one strategy for allowing access across system lines. Learning by whatever route can be recognized and rewarded. However, research is needed to know better how many and what kind of people benefit from these mechanisms.

—Governments must consider costs and benefits of increasing the structure or institutionalization of non-formal education activities. Benefits include standardization of quality and content and increased ease of co-ordination in use of scarce resources. Costs include rigidity, irrelevance, and unresponsiveness which often results. Non-formal education activities which reflect underlying power issues are frequently deprived of their ability to represent the needs of the clientèle when institutionalized.

—How much institutional structure should be built for non-formal educational organizations? Should large-scale bureaucracies be created? Should governments seek to run the activities, or only provide some inputs, or merely set policy guidelines within which they are to function on their own?

—Primary education remains the major force in any country and absorbs nearly all the state resources devoted to basic education. How can schools be diversified and improved to meet needs now being served by non-formal education? What lessons can they learn from non-formal education programmes? What tasks cannot and should not be undertaken by schools?

D. Diversified education for rural and industrial development

Non-formal education organizations exist to serve both rural development and the development of skilled workers for industrial growth. These programmes have quite distinct structures, different methodologies, and usually serve substantially different clientèles.

1. Rural development

—Rural programmes most often link with development of basic skills such as literacy, learning to work together, and basic consciousness-raising. Many such programmes reflect problems of underlying conflicts in unequal distribution of power between the modern-urban sector and the traditional-rural sector. Timing and extent of desirable government participation depends in part on the degree of commitment of government to changing these equity distributions. Successful programmes require a combination of long-term political support and technical know-how.

—Programmes for rural areas are generally participative in nature and based on community group organization. Programmes must be immediately relevant and allow meaningful control by participants if they are to effect changes. Such programmes are not usually susceptible to centralized control and organization, and are often a source of concern to governments.
—Rural programmes are more likely to be successful if they combine skill training with access to inputs needed for improved agriculture or rural crafts. It is therefore important to think about comprehensive packages which assist in providing access to all needed inputs.
—Rural programmes are often well initiated and managed by non-governmental organizations or locally created groups. Ways need to be found to support such efforts effectively without destroying their effectiveness.

2. Industrial development

—Programmes in this sector are completely different from rural-oriented programmes. They operate at several different levels of skill development: provision of modern technical skills used in manufacturing by business and industry; development of trade skills used by small entrepreneurs in urban and semi-urban settings; and development of skills for craftspeople and workers in traditional cottage industries.
—The social forces and interests behind the various programmes and the pros and cons of each should be carefully studied.
—The degree of formality and structure is highest at the highest level and decreases as one moves down the scale. Modern vocational training is often quite formal in organization—with trained certified instructors, and standardized certification. Such training can be expensive; it serves relatively few, as it addresses primarily the modern sector, and is normally run by the state in conjunction with employers. The closer the involvement and linkage with the employers, the more cost-effective such training is likely to be. Considerable training also occurs informally on the job and should be studied.
—The middle level of skill training is often well run on an in-service basis at the point of production. Apprenticeship schemes, co-operative training organizations, and other non-institutional arrangements work well. In such cases, governments can act by supporting the functioning of these groups, providing quality guidelines, protecting learners from excessive exploitation, and assisting in loose co-ordination. Small-scale training institutions built and supported by local communities are often effective.
—Rural craft training must often be packaged with other needed inputs such as credit, simple management training, access to raw materials, and marketing assistance.

3. Combining education and productive work

This is an important hybrid category. Some effective programmes combine real productive effort with both skill training and general education. Time is split between learning and production activities. Successful programmes often generate significant income which can offset part of recurrent expenditures. Such programmes are often run by individuals/private organizations with experience and commitment.

The most successful programmes seem to be those which contain the seeds of ongoing employment generation by forming co-operatives which spin off or by setting up graduates in self-employment. Study is needed into just what makes for success.

E. Planning issues

The diversified education sector exists, is large and varied, and is here to stay. Criteria are needed to decide what aspects need greater planning, co-ordination, and support from government. Probably governments neither can nor should try to plan all of these activities.

Research must identify those activities which are most amenable to some form of co-ordination above the programme level; those programmes where the importance of the activity to the society is sufficient to justify the cost of planning; and the priority sequence in which the government will gradually seek to bring some overall co-ordination to the various types of programmes.

The concept of planning will have to be broadened. It must be more flexible to allow for activities such as information-sharing, advisory councils, formulation of guidelines, and general co-ordination. The emphasis should be on facilitating and improving rather than direct control by central planning bodies.

Models are needed of decentralized co-ordination for diversified education. Research must specify activities and outputs of planning at central, provincial, and local levels. The purpose of the planning activities should include: improving the equity of distribution of opportunity, increasing the relevance and usability of educational activities, and improving the efficiency with which scarce resources are used to reach educational goals.

The strengths of non-formal education lie in its flexibility, its low institutional overhead, and its access by learners. Planning and co-ordination should preserve these strengths while pursuing equity and efficiency.

Planners need to learn how to make use of local, voluntary contributions in ways which leave control in hands of local settings, but limit undesired impacts on recurrent costs or on distribution of opportunity.

Research and data-collection should be linked closely to action needs of policy-makers at the research site.

Remember: *Educators are often an important obstacle for non-formal education.*

Report of the working group on Theme III:

The rôle of educational planning in the decision-making and implementation process

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A. General approach: study of the process

The working group approached the study of the practice of educational planning from the viewpoint that 'planned educational development' is a *process* (i.e. an open-ended process which never reaches a final solution), covering not only decision-making at the stage of policy- and plan-formulation, but also the design of implementation strategies and monitoring/evaluation systems. Discussions gave particular emphasis to the need for a 'holistic' (global) and evolutive approach within given time-horizons, and to the assessment of the close relationship between educational planning, the socio-politico-administrative context, political 'projects' and prevailing development models.

Group members agreed with the IIEP Introductory Document that the studies to be conducted should refer mainly to so-called 'non-coordinated' situations and that the main criteria for efficiency assessment should be the real impact of educational planning in two directions: one, with reference to decision-making and the other, to implementation strategies (this not being restricted only to the public sector). This approach should be coupled, the group felt, with more analytical and explanatory work leading to a more refined analysis of the multiple hierarchical levels of the structures involved in plan-formulation and implementation. Specific attention should be paid to the rôle that participatory practices may play and to the importance of the local level where education is actually provided, in order to counter-balance the paramount importance so far given to educational planning practice at the central level.

The group used the frame of analysis provided by the IIEP for the study of educational planning practice, which was represented as a network rather than a linear process, with a variety of foci such as organizational structures, rôles and interactions among actors, the use and relative weights of differing methods and techniques, monitoring and assessment of outcomes and impacts. It did suggest, however, broadening such a scheme to include the rôle represented by overall socio-economic contextual and planning models.

It also recommended keeping the process approach as the core of the

proposal, and not giving undue weight to the instrumental rôle of techniques, which must be seen within a more general perspective. References were also made to the importance of the underlying pedagogical dimension of educational planning and to the social rôle that education plays (e.g. when schools act as instruments of selection and have a monopoly of examinations and certificates).

The impact of educational planning on decision-making at the highest level was perceived by the group as being connected with decisions about objectives (choice or formulation of developmental and planning objectives) and with decisions about resources (mobilization, allocation and utilization of physical and monetary resources), as proposed by the IIEP. It was, however, recommended that priority emphasis be given to the latter when defining appropriate points of entry for research. Decisions on organizational matters, and those (for governance) based on monitoring/evaluation systems, featured less prominently in the debates but were nevertheless mentioned as possible themes.

The impact of educational planning on implementation strategies (both formulation and execution) took up a great part of the discussions. The debate was based on the propositions of the IIEP concerning budgeting, plan implementation, monitoring/evaluation and the data-base actually used in the planning process. The group considered that budgeting should be placed within a broader perspective, i.e. as an integral part of the more general process of resource mobilization, allocation and utilization for the entire field of education and training, comprising both in and out of school activities (a life-long education approach) and covering both public and private funding.

Restricted finance and difficulties in establishing accurate medium-term forecasts have resulted in quite a number of developing countries giving increased importance to short-term planning in close relationship with budgeting. But the degree of freedom for mobilization and re-allocation of resources (by levels, regions, branches, etc.) is considerably limited, although there remains room for a measure of resource optimization. The relationship between planning and budgeting, the complexity of which tends to increase in countries where a preponderant rôle is played by the Treasury, constitutes a significant area for research. This could also be said about the mobilization and utilization of extra-budgetary resources (i.e. not restricting the studies to the school system or to the public sector), especially in countries where industry, co-operative movements, communities and other social bodies play an important or increasingly active rôle in education and training.

The group also underlined the pedagogical dimension of educational planning practice (i.e. dissemination of educational policy statements, anticipatory thinking, etc.) and the need to study the use of information and the rôle of communication in planning and implementation of educational development programmes and projects. The problems of transmission and control, in both top-down and bottom-up directions, are important determinants of plan implementation and management. The phenomenon of re-interpretation or of information retention may affect the clarity of perception of activities and

ultimately the efficiency of educational planning as a whole. It was hoped that more attention would be given to the dimensions of planning which are directly related to the overall administration/management process, including community—or users—participation.

The group felt that the study of educational planning as a process gives overwhelming importance to the time dimension. Adequate forecasting and the design of strategies for the long, medium and short terms cannot be made unless a minimum knowledge of the past evolution and dynamics of the system is acquired over a significant period of time, as a basic for prognostic and prospective studies. Where a trend is observed towards more short-term plans, studies of educational-planning practice may be made not only in countries having a long experience, but also in those where educational-planning practice has been relatively recently revived or reactivated, and even in those where educational planning is still to be organized and actually practised.

B. The rôle of techniques and information in the planning process

Techniques and information exercise an important supportive function in the planning process. To make educational planning more relevant and efficient, a second look at existing techniques and improvement of access to information are necessary at all administrative levels. Adjustment of existing techniques to new contexts and actors, development of new techniques and improvement of the quality and relevance of the information-base for planning are therefore called for. By and large the group felt that the treatment of the issues related to techniques and the information-base may have been in the past somewhat divorced from the socio-administrative context in which the planning process takes place and from possible participatory practices.

Group members recalled that educational planning should be more of a learning process enabling all classes of actors concerned, from the politician to pupils and their parents, to become increasingly aware of national educational objectives and progress made towards their achievement. Lack of clarity and communication of information seriously affects the adoption and implementation of any policy strategy. 'One-way communication' is too frequent, and the functions of the local level tend to be restricted to the production of information for consumption by officials at higher echelons rather than a target for transmission of proposals from which may emerge a consensus and which, in any case, allows for a dialogue.

1. Techniques

The group noted that any analysis of the utilization of a technique should always take into account the planning model and the strategy of which it is part, the social and administrative context in which it is used and the resources available (both human and material).

Most techniques have been developed under the assumption (explicit or implicit) that they are going to be used by planners essentially at the central level, thus often neglecting the specific needs of local-level personnel. The group recognized the efforts made by the IIEP in this respect in such fields as micro-planning, regional disparities and cost analysis, but urged the Institute also to give greater attention in the coming years to the problems faced by local-level officials and those operating at intermediate levels. Building up local capacity for analysis and management should primarily aim at giving people a better understanding of their own problems and enabling them to become actors in the planning process. Research on local-level issues should ultimately result in new training strategies. Planners and administrators trained by the IIEP and other organizations should be able to share their knowledge and skills with local-level personnel, employing the language used by the latter and taking into consideration the characteristics of the local situation.

Suggestions were also made that some actual reforms should be examined in order to identify the techniques used. How do selected strategies impinge on the choice of techniques? What use is made of existing techniques? What adaptations are made? Are any new techniques introduced and lessons drawn from successes or failures? 'Old' techniques may be used in new and different contexts.

The Introductory Document suggests that a special analysis of the kind of techniques used in the different phases of the planning process should be made. A member of the working group felt that different economic situations should be considered too. For instance, budgetary analysis is likely to become more important in times of recession.

2. Information-base

The question raised at the outset concerned the information sources generally used and the kind of information which is lacking in educational planning. Some examples were discussed and there was agreement on certain general aspects such as the inadequacy of educational statistics in most developing countries as a basis for preparing and implementing educational policy decisions, and the necessity to include non-quantifiable data.

However, certain reservations were also expressed as to the possibility to generalize at all, either across countries and/or within a particular country over time.

There was also concern that data-gathering may become a ritual. Too many data are already collected, and there is often poor co-ordination among the various entities undertaking the collection.

The quality of information for planning often leaves much to be desired, as regards both its relevance, reliability and timeliness. The inadequate use made of existing test scores and other examination data was particularly mentioned. There appears to exist a need for greater consistency and centralization of information existing on project preparation and implementation, so that it may

be integrated and fully used within the general planning process of the educational sector.

Any attempt to include qualitative information (in general) and information generated by research in the planning process raises several problems. One problem area relates to the capacity of planners and statisticians to handle such information. The other issue concerns the capacity of storage and retrieval systems to absorb such non-quantitative information.

The group felt that the IIEP should examine the conditions needed to develop the capacity for planning staff to initiate, co-ordinate and eventually conduct research and development activities. Is it possible to reinforce the research component in the Institute's Annual Training Programme? What other training strategies might be envisaged?

Micro-computers will be available shortly at low cost to planners at the national and sub-national levels. The problems involved in introducing micro-computers pertain not only to software and maintenance. The crucial issues remain the quality and relevance of information collected and the organization of the data-base. It is indeed necessary to alert people to the problems of, and the suitable strategies for, improving the quality of basic data. This should be included in the research and training efforts of the IIEP. Most African countries have main-frame computers that are at present under-utilized. However, it is not necessary that the development of macro- and micro-computers should follow a specific sequence.

It was recommended that the Institute should conduct a large-scale survey in as many countries as possible, to obtain an overall view of the availability and use of different kinds of information, (not limited only to quantitative date) for planning purposes (diagnosis, plan elaboration, budget, monitoring). The survey would also cover methods of data-collection and processing (i.e. existing information systems, etc.).

Previous studies already available should also be analysed. The REDUC network in Latin America has identified materials available in twelve countries, and the results (even in the least developed countries of the region) have been impressive. In these cases, comparison of information used in the planning process with those 'available' may prove revealing.

C. Recommendations for research

The group's recommendations may be summarized as follows:

1. A theoretical framework for the research should be formulated to make clear the research questions, general hypothesis, variables, etc., (the general approach being heuristic and not normative).
2. The group suggested three types of studies that the IIEP might conduct:
   (a) *ex-post* studies: retrospective historical evolutive analysis in countries having a long tradition and sytematic experience of educational planning. Comprehensive studies could be combined with in-depth studies of a particular (functional) area or problem;

(b) *on-going* studies at a time when educational planning is playing a significant new rôle, especially in periods of important changes and reforms; these studies could focus on specific aspects of a given plan and should produce quick results for feedback to the on-going process;

(c) *future-oriented* studies: the kind of action-research studies which might be more suitable for countries initiating or trying to enhance their educational-planning practice in relation with new educational policies.

The latter two types should incorporate training components.

3. The following sequence was advocated:
   (a) preliminary surveys of a number of countries for the identification of types of cases (these could be representative of sub-regions);
   (b) exploratory studies to test research assumptions and designs in a reduced number of countries
   both to be initiated in 1984;
   (c) in-depth studies, throughout the period 1984–89, in a number of countries where the necessary conditions for research can be met;
   (d) comparative studies, for the purposes of synthesis.
4. The interest and involvement of national authorities and teams should be one criterion for the choice of country; another is the feasibility of field work and dissemination of results, so that the research may be both useful for the country and relevant to the international community.
5. Studies should be organized on an interdisciplinary basis, and even on an inter-institutional basis when necessary. Researchers from universities could make an important contribution to studies on policy-making.
6. Techniques of institutional analysis as well as critical incident analysis were suggested by the group to complement the use of surveys, interviews, etc.
7. The applicability of the results to training purposes should be one of the basic criteria for research orientation.

PART THREE

Reflections on the discussions

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Educational planning and technological development: reflections on a discussion

Introduction

The discussions that took place on this theme first of all revealed the complexity of a field that encompasses situations and trends in technology, the entire gamut of working systems and the educational world in all its variety and structural, institutional and juridical heterogeneousness, in developed and developing countries, as well as within each of these categories of country. And yet all those taking part acknowledged the utility of studying this field, owing to the prevailing feeling that there is widespread dissatisfaction with the workings and results of educational and training systems, a feeling that technological systems are evolving extremely rapidly, thereby aggravating the crisis in manpower-requirements forecasting approaches and techniques; lastly, they expressed the feeling that the world of work, in spite of all the research lavished on it, is influenced and shaped by factors that have yet to be analysed validly, both in the developed and in the developing countries.

How can we stimulate discussion of relations between technological development and educational planning without resorting to familiar recommendations about the need to broaden scientific and technical education, or to perfect our manpower-requirements forecasting methods by the addition of a few more parameters or variables? All those taking part in the discussion secretly harboured an urge to innovate.

Attempting to summarize the discussion, we may say that it dispelled certain ambiguities, established and examined in depth certain concepts and ideas, and identified certain questions that arose in the light of theoretical discussions, of analyses, and also of certain precise accounts of national experiences.

A. Clearing up ambiguities

One of the merits of the discussions on the relations between technological development and educational planning was that they helped dispel a certain number of ambiguities surrounding the existence and scope of the problem, the functions and responsibilities of education, and the concept of technological development itself.

The first ambiguity indeed concerned the very existence of the problem of relations between technological development and educational systems, and clearing up this ambiguity was to some extent a necessary pre-condition of any further discussion.

For some people, the discussion on technical change and its relations with the educational system was already contained within the analyses of the rise and fall of manpower-forecasting methods. So to re-open discussion on this question was in fact tantamount to going back over ground already covered. In reality, the criticism of manpower-requirements forecasting methods and of their effects on educational and training planning focuses essentially on the precariousness of their assumptions or of the relevance of the parameters used, including those explicitly relating to technical change. But the question before the meeting was less to identify means of improving the conditions under which technical changes are introduced into forecasting procedures, or of building on the quantitative approach, than to analyse the contemporary mechanisms of production, circulation and utilization of technologies of knowledge, and to identify their impact on systems of work and skills as well as on educational policies and educational planning; not so much in order to contrive abstract improvements to quantitative forecasting methods as to elucidate the qualitative processes at work and their impact on the present and future scientific and technological capabilities of societies, and by this means to shed light on the way decisions are taken through the agency of planning.

This question takes on added importance in view of the massive transformation of industry and agriculture throughout the world over the last twenty years. There has consequently arisen an accumulated wealth of industrial, agricultural and training experience; here and there, we have encountered a growing chorus of reservations and sometimes even criticisms of the practical results achieved in this or that area of the economy, or of certain aspects of training in practice.

The second ambiguity which this discussion helped dispel concerns the functions and responsibilities of education and hence of educational planning in the field of technological development.

Some people have rightly held that education, seen as a social process, performs several functions, and that transforming it into an instrument of technological development, regardless of the nature of that development, would be prejudicial to it, to the benefit of an otherwise uncertain productivism.

Yet others asserted that relations between education and development of all types have been tenuous in the past, and that it is not really desirable to strengthen them in most cases, since in non-egalitarian societies, where qualifications are highly polarized, by placing education in the service of development one would merely be reproducing this state of affairs and, consequently, reinforcing the inequalities of power between the most highly-skilled and the least-skilled—all in the name of development; even in societies that are explicitly seeking to achieve relative social equality, the quest for technological

development would introduce new forms of social stratification associated with technological conception and control. As a peasant might say, 'we prefer black buffalo that eat grass to red buffalo that eat chicken', alluding to the risks of exploitation entailed by the emergence of a stratum of technicians and engineers through mechanization and technical change.

This issue is of central importance and deserves further investigation. To begin with, it apparently involves a discussion of development far more than a discussion of the relations between education and development. For unless we are prepared to believe that social inequalities are entirely determined by technology, which is scarcely acceptable, one cannot reject all forms of technological development and its implications for education out of hand simply because of the alleged inequalities that it entails. Paradoxically, moreover, by taking an abstract view and rejecting technological development in the developing countries because of its domestic social consequences, one would merely help to strengthen the international inequalities that flow from the low level of technological development in these countries.

Similarly, if no one denies the multifunctional character of education, neither can anyone deny that one of education's functions is to produce producers—and that this function merits investigation. We need to study its interactions with other functions, to see how this function is organized in practice in the different models of development and to see how it relates to the different aspects of development, notably its technological content.

From this point of view, the substantial downgrading of workers' skills which is effectively observed in many countries, including the developed countries, is due far more to the nature of the technologies produced than to the school's inability to serve development. If technology renders the school marginal, is that the fault of the school?

Taken to its extreme, the foregoing reasons would be tantamount to saying that since technology is evolving in such a way as to downgrade workers on a large scale, the educational system should therefore pitch its production of skills at a level commensurate with demand on the part of the market. In that way, the school would merely adapt to this downgrading of skills instead of fighting it. Furthermore, this argument is complete only if we bear in mind that the world distribution of skills is such that the downgrading of skills affects the developing countries in particular, as these are heavy consumers of imported technologies. In other words, if educational systems are supposed to play a positive rôle, they must also do so by contributing to a less unequal worldwide distribution of skills, even if this does take place within an inegalitarian structure.

Another issue raised in the seminar concerns the responsibilities of education in technological development policies. Some participants rightly stated that technological development, seen as the development of national capabilities to control technical change, only marginally concerns educational policies and is above all a question of industrial and agrarian policy imperatives, and more generally of overall economic policy imperatives. The discussion, and

particularly the examples cited by certain countries, showed that it is not enough to organize the production of the necessary skills and qualifications on a stable basis. It is also important to have local control over investment policy and a fully worked-out technological policy in all its components (and these are many) so as to supply the indispensable framework for the formulation and implementation of a thoroughgoing scientific and technical education and training policy. Failing this, the so-called policies of scientific and technical 'orientation' currently in existence in educational systems are generally doomed to produce graduates destined for unemployment or distinct underemployment, and, in the best of hypotheses, to form a potential pool from which it will be possible to draw on the necessary skills and qualifications whenever these different policies actually come into existence, without unfortunately ruling out the possibility of definitive wastage of these skills. But where such policies do effectively exist, the responsibilities of education and training are great indeed, and it is not certain that decision-makers, in certain areas, have taken them fully into account.

For example, reference was made to the case of deliberate technological development in certain branches of industry in Brazil, or of the agricultural system in Algeria, and to the fact that these countries' educational systems have either failed to react, or have done so inadequately, to these technological demands.

That said, nobody denied the difficulty of translating the imperatives of technological development into educational policy terms, or into the formulation and implementation of educational plans, especially in circumstances where the technological changes taking place are very deep, diversified, and, in certain instances, hard to predict. In all such cases, the responsibility of technology planners is as great as that of the educational planners. This is because in certain circumstances the instability or inadequate formulation of technological development policies prevents educational planners from organizing the training of the necessary personnel on a systematic basis when they wish to or are required to do so.

Lastly, this discussion dispelled ambiguities surrounding the concept of technological development. Some people have over-hastily identified this with the question of the development of new technologies, while these same people, together with others, have expressed fears that its operational scope would affect only those countries having already achieved a certain level of industrialization. Clearly, as one of the participants explained, one of the major contradictions encountered in the developing countries is that between relatively democratic educational policies, at least as regards growing sections of the population, and relatively élitist economic policies which restrict opportunities for the absorption of school-leavers into the economy; some people expressed the fear that the pursuit of technological development might aggravate this contradiction.

The discussions did serve to clarify these important points, though not without difficulty.

First, if technological development is defined as the capacity to achieve local control over technological change, we may say that the need for it does not concern exclusively or primarily, new technologies; it also concerns the so-called conventional technologies (which even now remain the dominant ones, despite all that has been said about the spread of computers, electronics and biotechnologies, not to mention the appearance of new branches such as 'mechatronics' or tele-processing). Technological development is a process which is changed as a result of innovation but is defined in relation to a particular innovation. The concept of technological development refers back to a great variety of practical situations.

For that reason, the discussion showed that even in a great many countries—participants listed roughly 60 with a population of some 600 million between them—with either no or very low levels of industrialization, the question of technological development is on the agenda, sometimes still more acutely so than elsewhere. Here, the question consists in examining local conditions relating to control over growth in farm productivity and the processing of agricultural produce; this control in turn leads to important questions regarding the development of agricultural implements and machinery, agricultural and soil science, and the development of simple industrial machinery needed to process agricultural produce. Though simple in appearance, this technological imperative has tremendous implications for both the urban and the rural components of the educational and research systems. The practical articulation of the engineer's and the peasant's respective knowledge, and the proper application of the craftsman's know-how are key elements of this process of technological progress.

Technological development is universal in character precisely because of the nature of the problems that it seeks to resolve. To ignore this point is to fall into the trap of intermediate technologies and international technology transfers.

Lastly, it seems clear that while the relations between technological development and the broadening of employment opportunities are extremely complex, the present-day forms of industrialization and agricultural development, which are often characterized by technological change though without any major technological development, nevertheless define the limits to the economic system's capacity to absorb graduates from the educational system.

B. Deepening reflection and concepts

The discussions yielded considerable insight into the relations between technology and education, and between technological and educational policies and educational planning. Four aspects were discussed in particular and produced the reflections summarized (though, unfortunately, not in detail) in the following paragraphs.

To begin with, it emerged clearly that the relations between technological policies and educational policies need to be analysed in dialectical terms and

not in terms of any simplistic mutual determinism. Experience shows, for example, that major technical changes in the economy, even in connection with externally-induced technological development, have not necessarily led to changes in the educational system; conversely, the broad thrust imparted to the educational system may produce technological changes, as has been the case in India, where, as part of a process of greater vocationalization of secondary education, an attempt has been made to develop skills likely to transform society through the creation of new businesses, innovation, etc. It was suggested that, just as one ought to seek some measure of compatibility between technology and education, one ought conversely to try also to match technology to education.

It is imperative, in seeking to match up the two systems, to devise new homologies. For example, the discussion drew attention to the rising trend in the scale of technologies and pointed to the consequences of this trend on the educational system in terms of employment, the scale of workers' collectives, the diversification of the structure of qualifications and the training problems to be resolved.

It was suggested in this respect that there was a need for a reverse trend, for a 'scaling-down' of technologies, particularly in the developing countries. But this argument was also taken up in discussions concerning the developed countries, and some participants thought that there was a clear need for a global approach, entailing a simultaneous search for levels of compatibility between productive and educational systems, by acting simultaneously upon productive systems and technological systems as well as on educational and training systems. This reciprocal matching-up process would be more fruitful than a process of adaptation.

The immediate consequence of this reflection is that the educational and training policy-maker should neither neglect nor underestimate, nor remain external to, thinking and decisions concerning the evolution of the productive and technological system. Upon this depends the credibility of this vital aspect of his work, which is to establish a dynamic link between the output of the school system and economic and social change. Still more practically, the discussion showed that this vital need to establish a correspondence between technological policies and educational policies was hindered by the unequal powers of the different structures concerned.

Some participants pointed out that while long-established and well-organized educational systems have on the whole produced relatively powerful conceptual and decision-making bodies, this is by no means the case in most developing countries as regards technological systems, and few countries possess technological policy-planning and decision-making structures: this imbalance obviously affects these countries' ability to implement this dynamic articulation. Many countries have educational development plans, in which objectives and implementation resources are identified, but few have fully-fledged technological development plans in the full sense of the term, and talk of this kind of development is often more ideological than realistic.

The second area in which discussions shed light on the relations between education and technology is that of the analysis of the organization of work. Recent studies have shown that the consequences of technology on qualifications and hence on training are mediated by patterns of labour organization. This discovery is obviously crucial, since it rules out any kind of technological determinism of forms of labour organization, of the necessary qualification structures and, consequently, of the training structures. The view that the organization of work is determined by technology has come in for recent criticism, particularly in the light of comparative analyses of the relations between technology and organization in a number of countries, which have shown technologically comparable enterprises to be organized differently and to have different chains of command and supervisory structures; however, it is impossible to assert that technology, work organization and qualifications are mutually independent. These studies do suggest, at any rate, a certain margin of freedom in the organization of work and the structure of qualifications, and this is not without importance for educational policy in particular.

Similarly, we may accept the argument that this margin of manoeuvre between technology and qualifications allows people leaving the educational system without any qualification immediately applicable in the productive system the opportunity of retraining on the job. Given the extent of the gaps between the output of educational systems and the demands of the productive system, this argument is plainly of some weight. Nevertheless, it should not be allowed to breed over-optimism, particularly where the developing countries are concerned. This is because the organization of work, qualification structures, and the learning process that they determine, may rectify marginal deviations, but under no circumstances can they narrow the particularly flagrant gaps between individual qualifications and collective skills. The extent of these gaps will undoubtedly vary from one industry to another. Nor should this argument be allowed to nurture the illusion that qualifications or skills produced in order to make effective use of technologies can in themselves, by means of adequate patterns of work organization, be transformed into the qualifications and skills necessary for technological innovation. We shall be returning to this point later, as it is an essential one.

The discussion yielded a clearer idea of the content of technological-development policies. It emerged very clearly that the ultimate aim of a technological-development policy is to put an end to repeated imports of knowledge, skills and plant for the entire local productive system. This imperative necessarily results in a technological policy presenting two, extremely closely interconnected, aspects.

The first aspect concerns local control of the rate of import of knowledge, skills, equipment, and of their utilization in the productive system. Such control is not self-evident, as it implies acting upon the decision-making systems regarding investment and technical change, and for many countries this intervention demands bargaining and contracts with a variety of economic operators.

Theoretically, this control requires several instruments. The first entails building up the greatest possible familiarity with worldwide scientific and technological change, with particular reference to the key sectors and industries either existing or to be developed in the country in question.

Such knowledge is not necessarily easy to come by; it requires the setting-up of scientific and technical information systems staffed by competent scientists and technologists capable of keeping abreast of contemporary trends. On this point, it was agreed that Unesco plays a not insignificant rôle in regard to training in particular.

The second element of this control concerns the development of local technology-selection capabilities, in order to put an end to the existing hegemony of technological supply over demand, and in order to provide society (in particular the producers) with the means to choose from among the technologies available. The discussions noted, by way of illustration, that it was the absence of this capability (but also, frequently, of the power) to choose that lay at the root of the tremendous technological 'howler' committed in the rural areas of the developing countries, where people have confused 'agricultural mechanisation' with 'the introduction of heavy tractors', and increased crop yields with extensive use of chemicals and high-yield seeds, while neglecting all the possible technological alternatives, particularly those based on the best agronomical experience and on the technical know-how of the peasantry. Clearly the real difficulty with regard to technological development is that of achieving a fair distribution in society of the ability and power of choice with regard to technologies; the discussions showd that there was no necessary correspondence between the two, nor even any necessary parallel development. For example, it was noted that, in certain countries, the existence of an ability to choose from among technologies was not necessarily sufficient when the effective power to choose technologies in the productive system is out of the hands of those who have this ability to choose.

Plainly, the ability to select imports is a key element of technological policy, in so far as it is at that point that decisions are made regarding which technological trends are desirable, and it is at that point that imported technologies articulate with those available or produced locally, which represent the core of a technological development policy. Training in, and the distribution of, these technological selection capabilities is certainly one of the challenges currently facing educational policy. For example, it may be interesting to take a look at which different, yet complementary, rôles basic educational and technical education might play in enhancing and disseminating technological choice-making capabilities and powers in the rural areas.

In this respect, some argued that the spread of basic education, rather than that of secondary and higher education, would prove a better option, as it ultimately enhances the social bargaining capabilities of the peasantry. Tanzania was cited in illustration, although even in this case experience has shown that educational policy is a necessary, though not sufficient, condition of development of output and incomes. More broadly, moreover, there are

grounds for questioning those theories that systematically ascribe democratic and egalitarian virtues to this or that level or form of education without concern for the overall social context or the actual performance of this or that level. One might cite the case of countries (not many, perhaps), which have achieved universal primary schooling but whose primary school-leavers are practically illiterate, and other cases where the fact that basic education has been deeply rooted in society over many generations has been a major social and economic force, as in Japan or Korea for example.

At any event, it is first necessary to deal with this preliminary question of a country's ability to choose and its power to choose, before going on to deal with the question of developing its capacity to utilize imported technologies. Indeed, the development of the capability to use, maintain and regenerate imported technologies is meaningful only if this process forms part of a wider process of technological change of which imports are merely a means.

It is becoming increasingly clear, in the light of many countries' experience, and in particular that of certain developing countries, that the second aspect indispensable to any technological policy is that of local production of technology. This should not be reduced in the abstract, for example, to the mere local production of producer goods by external operators with factories in the country, or exclusively under outside licence, but on the contrary as the local capacity to produce new machines, new knowledge and new skills. This situation calls for very special links between the production of plant, industrial research and training systems. The discussion revealed that this second aspect of technological development policy is one of the most complex to implement owing to historical factors and technological habits acquired, which impart both a high degree of inertia to the productive system on the one hand, and a series of socio-economic and politico-cultural contingencies which may foster the emergence of this or that feature of the technological production policy on the other. Korea is a significant example in this respect. The existence of determinate cultural attitudes and the specific industrial history of this country have powerfully contributed to its technological performances.

The discussions revealed the need for very detailed analysis of the socio-economic, political and cultural conditions which, in certain countries or sectors, have contributed to the mobilization of local social creativity. For example, mention was made of the highly specific conditions in which certain countries such as Korea have achieved overall development, or in which certain specific industries such as computers, farm machinery, the new energy sources or Brazil's arms industry, have emerged. Similarly, analysis of India's experience in agriculture and the space industry was also mentioned.

It was further noted that the practical articulation of import policies with local products in the pursuit of global technological development is rendered more complex by the increasingly horizontal dissemination of the new technologies throughout the entire productive set-up. How free are different countries to decide on the degree of automation that they wish to introduce into their productive systems? Is this degree of freedom strictly dependent on the

extent to which the country is open to world trade? This question is obviously not without consequence for the education and training systems: should one, for example, give priority for training for skills and qualifications in mechanical engineering, which is more closely associated with the old technologies in the eyes of the North, though none the less highly productive from the South's point of view, or should one on the contrary systematically organize training in electronics and its industrial applications, which have been rendered indispensable by the introduction of new technologies into industry? Other questions concerning training from this point of view obviously spring to mind, including the central question as to whether training should be carried out locally or abroad. In this respect, moreover, while certain participants questioned the very principle of sending students abroad when one realizes the huge objective difficulties surrounding their reintegration into the working community, especially in scientific and technical research, others pointed out that technologists and researchers were flocking back to those countries whose local technology was clearly dynamic. Here again, the cases of India and Korea were cited.

The fourth factor that attracted the participants' attention concerned relations between material creativity and cultural creativity. Nobody now denies that the large-scale introduction in recent decades of external forms and models of production and consumption has been prejudicial to national cultures, particularly in the developing countries, although certain developed countries also express some doubts.

While it is true that technical creativity, the creation of products or forms and means of production are material processes, they nevertheless reflect a certain conception of life and of relations between people. In order to respect cultures, therefore, and in order to allow development to draw its ambitions and resources from within those cultures, and in order to give full importance to the traditional technical know-how that these cultures always possess, development should seek to foster technical creativity, thereby guaranteeing the survival and actualization of those cultures. For some participants, moreover, the time had come to broaden the concept of cultural spheres which Unesco sometimes talks about, and to speak of techno-cultural spheres in order to emphasize this intimate linkage between technology and culture, and to turn our backs both on any kind of technological determinism with regard to culture as well as, and above all, on any form of cultural voluntarism in situations of technological dependence.

It is no accident that, in present-day international economic competition, artistic and cultural expression is viewed as an important additional contributing factor to material production rather than as a burden to society. Why should things be otherwise in domestic economic development? Technical and cultural development are mutually reinforcing, and it is in this sense that culture becomes an end and a means to development.

That being so, much was said about the need to root development in the cultural values of society, and this is certainly the important characteristic of development when one realizes that modernization imposed from outside or

implemented by 'de-cultured' local élites has been a key factor in the marginalization of majority culture. What is important is the conditions surrounding this cultural revival, seen as a society's capacity to produce its own system of artistic, literary, and philosophical representations, and the rôle of material creativity in this process.

We may hypothesize that cultural creativity is not independent of a country's level of development, since it is the latter which gives to it the material means of its extension; further it is not independent of material creativity viewed as a process of establishing new forms of production and consumption. Because culture has been invaded by the economy, and still more so by commerce, its actualization in diversity is feasible only if it is safeguarded from economic factors and commercial appetites. Are we going to find ourselves faced with the daunting dilemma of having to choose between external technologies and internal cultures or, taking a more optimistic view, can we reconcile, and how, the common growth of control over nature without sacrificing those relations between men that identify their differences and transform them into culture? Can we, and if so where and by means of which agents, transform science into culture?

C. The current questions

The wealth of these discussions did not however succeed in clearing up all the difficulties raised by so awkward an issue as the linkage between educational policies, educational planning and technological development policies.

The first question, whose implications for educational policies are far from negligible, concerns the relations between scientific development and technological development. This question itself raises several subsidiary ones.

First among these is whether or not scientific development is an indispensable pre-condition of technological development, not for the international community as a whole (that goes without saying in the contemporary world, where progress in practical skills depends on progress in fundamental science), but for specific countries; on the contrary, might these not find it in their interests to devote their efforts to the planning and development of technological resource while relying on the available stock of world scientific knowledge for the science necessary to this technological development? For many countries, this would offer the advantage of enabling them to focus more clearly on their priorities, even if clearly, once a certain level of technological development has been reached, the question of scientific development comes to the fore. Japan and possibly China are cases in point. For many years, these two countries built their technological development on the basis of available scientific knowledge without contributing to progress in this sphere. It is only recently that the need to maintain its technological leadership has led Japan to consider the upstream side of this process.

This question is not irrelevant to educational policy planning when one realizes that, in many developing countries, more scientists and basic science

researchers are trained than engineers and specialists in technology and applied research. This situation emerges clearly on closer examination, on a stream-by-stream basis, of enrolments in higher education in many countries. Needless to say, the desired technological developments may in their turn raise new questions for science, but that approach is very different from the one that consists in treating scientific and technological development as a world-wide continuum, in which the latter is subordinate to the former.

Some participants even suggested that Unesco is partly responsible for the dissemination of this notion that scientific development and technological development form part of a single, universal, set of problems and that the one is determined by the other. Hence the slightly naive belief, according to certain participants, that international co-operation in the field of science and broader access to scientific knowledge ought normally to breed co-operation in the field of technology and greater access to technological knowledge, both being universal in essence. However generous in appearance, this vision may have instilled in educational policy-makers the conviction that technological development is synonymous with the spread of scientific education among the different levels of the educational system. In fact, however, the transition from science to technology is conditioned by economic relations which determine local technological decisions, the manner in which these dovetail into the international technological decision-making process, and, in order to take place in a positive manner to the benefit of society as a whole, presupposes deliberate technological policies in which scientific education plays a rôle, though not the only one and possibly not the principal one.

Some have claimed that this vision has created *de facto* a surplus of scientists and engineers; efforts to utilize these categories of personnel in society have run up against the realities of under-development and power-controlling firms and laboratories. Examples of this point would include certain industries in Brazil. Clearly, moreover, the brain drain is frequently the outcome of such gaps between the level of scientific knowledge and the pace of technological development.

Lastly, it is worth noting one final aspect of this articulation concerning the respective dimensions of the two, which are favourable to scientific development on the one hand, and to technological development on the other.

Certain researches have shown that scientific discoveries often depend on the dimension and on critical thresholds of size, and that succeeding waves of scientific discoveries could well be associated with a specific intellectual and social density. This question is obviously of interest to educational planners when pondering pupil and student careers-guidance mechanisms.

A second fundamental issue that remains to be resolved concerns the question of rising skills. This is the term used to measure a given country's possibility, within its strategy, of pursuing educational and training policies or measures designed to turn out personnel qualified to use imported technologies without worrying whether these qualifications and skills are sufficient to breed innovation in the productive process or the design of new machinery and the

production of new knowledge. This question is particularly controversial, as the history of technology appears to show that there has been a growing division of labour as between producers of machinery and users of machinery since the middle of the nineteenth century, whereas this division had not existed beforehand or at the dawn of the industrial revolution. The emergence of the distinction between firms that make machinery and those that make intermediate and consumer goods has been a gradual process. Some have noted that this division is the ultimate source of the intersectorial and intrasectorial polarization of qualifications and of the emergence of workers' collective organizations, especially in the intermediate- and consumer-goods industries. For in the latter, the skills of the workforce are very definitely downgraded, even if the workers may have the illusion, especially since the introduction of automated machinery, of performing skilled work on the grounds that they have donned white coats and have discarded manual labour, spending their day controlling automated machinery and probably receiving higher pay. If this polarization really does exist, then it is highly probable that the use of machinery, and even its maintenance, do not in themselves prepare workers to contribute to the design and production of this machinery. This is an important question when one bears in mind that recent industrialization in the developing countries has in many cases represented a thoroughgoing technological upheaval.

Others, however, expressed the idea that the new technologies will, on the contrary, reverse this long-term trend towards the separation between the design and manufacture of machinery and its utilization. According to them, recent technological progress reintegrates maintenance and management into the production process, the tasks being, to some extent, a unifying element as between the conception and the utilization of technologies.

In actual fact, this issue of 'rising skills' is an extremely complex one and needs to be examined in detail for each different level of qualification, for each sector and period under consideration. Indeed, it needs to be approached differently depending on whether one is considering skilled workers, technicians or engineers. For each of these categories, we need to analyse in detail the conditions in which skills acquired in the utilization or maintenance of a given type of machinery, in the production of consumer or of intermediate goods, can help them to operate machinery in the producer-goods sector or to design new machinery for expanded output. What are the links between experience acquired in production and industrial research as an arena for evaluation and innovation?

By the same token, this question certainly needs to be asked differently according to whether one is looking at the textile industry, car production or steel-making. It is in this framework that analysis in terms of levels in terms of technological complexity, as suggested by one of those taking part, becomes fully fruitful.

Lastly, it is obvious that the period in which the question is being raised will influence the way one goes about answering it, and in this respect an analysis of

the effects of the new technologies in the developing countries would appear to be indispensable. For example, it is clearly difficult to organize this rising of skills at a time when the rapid computerization of production processes and the spread of robots is posing the problem of qualifications in a new light. In fact, we shall be able to answer this major question concerning rising skills only by means of careful research. This research should focus in particular on the makers of producer goods, both private and public industrial-research laboratories, and maintenance and development departments in all types of enterprise, in order to try to identify their recruitment and training strategies, and the educational trajectories of workers employed by them.

The relevance of this question to educational planning should be plain by now, that is if planning is to be anything other than a process of passive adaptation and if, on the contrary, it is to seek to foresee and shape future trends in accordance with what is considered desirable.

The third theme discussed concerns the allocation of resources to the educational system and within it, in connection with the problem of technological development.

This is an important problem at a time when the economic crisis is squeezing already limited resources available for the funding of education in the Third World, and when rising needs and the instability of costs are increasing the volume of resources necessary, just when economic growth prospects are not all that bright.

It used to be thought by certain people that education and training for scientific and technological development would give priority to scientific and technical subjects in secondary and higher education; they argued that the high cost of teaching at these levels would restrict or divert the indispensable resources required for the extension of basic education. Indeed, statistics frequently show a growing concentration of resources on secondary and higher education, and a considerable inequality of unit costs as between these levels and elementary education. These worries are not groundless, but they raise a whole series of related questions. Apart from the present need, in any case, to broaden the sources for funding for education in particular, and it would not be difficult to prove that technological development is a key factor in such a broadening, we also need to recognize that the basic question is less the problem of a brutal trade-off between resources that that of an overall redeployment of resources currently utilized or of resources available for mobilization.

Indeed, one would have little difficulty showing that in many countries where a high proportion of spending goes on secondary and higher scientific and technical education, the definition of educational and training objectives frequently has little bearing on the qualifications and skills needed to supply the country with the requisite skilled workers, managers, engineers, researchers, etc. To be sure, technological development does lay special emphasis, at certain times, on certain streams and courses of training, but this priority should not be regarded *a priori* as being more expensive than the wastage

produced by certain types of technical and vocational training, or by the monopolization of resources to the benefit of small sections of the population through higher education, not to mention the excessive organizational and management costs of many universities.

Lastly, it is worth nothing that the opposition between technological development and basic education would be less blatant if basic education itself were regarded as containing within it the seeds of technical development, particularly in rural areas, where it ought to be a means of building upon existing technological potential. The well-known experiences in this field, particularly the 'ruralization' of the schools, have unfortunately not been all that encouraging. So there is no need to add the educational costs of technological development to the already existing costs, but rather to encourage, deliberately, a redeployment of resources across the board, so that each level of the educational system may fulfil the essential social functions expected of it, without resorting to the kind of abstract, quantitative planning behind which diversified strategies always tend to hide.

What is more, it may be that a judicious policy of using qualified people who have already graduated from the educational system but who are generally unemployed could prove to be a credible policy. One such possible approach might be to provide technological retraining for higher-education graduates.

The fourth question concerns the receptiveness of educational systems to the reforms entailed by technological development. Certain participants pointed out that wherever governments have tried to boost the technical performances of secondary and higher education, particularly with regard to the new technologies (though not only those), it has quickly proved difficult either to recruit competent personnel to the teaching profession or to retrain existing teachers. For example, it was pointed out if 70 per cent of teachers are going to have to handle the new technologies in some way or another by 1990 or thereabouts, the question arises as to what steps we ought to be taking now to prepare these teachers for their duties in 1990. One of the means employed in India, for example, has been to use research centres that have already achieved a certain leadership in this or that technology to train personnel for teaching these different subjects, e.g. new energy sources, oceanography, remote sensing, exploration, etc. This is one example of all the different innovations that need to be taken into account by the educational planner in order to effect the necessary transformations.

The fifth issue to emerge from this discussion concerned research methodology. On this point, the discussion revealed the possibility of two approaches to research on the relations between education and technological development.

Some participants pointed out that the best approach to an understanding of this type of linkage was the historical approach. By encompassing a fairly long time-span for a number of countries, this approach would seek to lay bare the conditions in which the international division of labour and the technologies that this has disseminated at different times have transformed the functions, organization and results of the educational system in the broad sense of this

term. This historical approach would have the advantage of providing insight into the practical mechanisms whereby processes of creativity or social inertia have appeared in this or that society, and into the practical linkages between the learning of operational modes associated with different technologies and the socialization indispensable to the functioning of this or that technology.

Many participants stressed that the introduction of a technology also implies the introduction of new social relations, and that if one of the elements of technological development is learning these new relations, then it is important to identify the rôles of education and training in this socialization process. For example, it was stated that the prime function of the educational system in Japan is precisely this process of socialization. This diachronic approach would undoubtedly teach us a good deal about the technological capabilities of countries such as Japan or Korea, where local cultures and industrial histories have combined to breed technological success. This approach would certainly be more beneficial than a comparative analysis of a whole range of over-disparate experiences, without any prior conceptualization.

Others, on the other hand, expressed a preference for comparative analysis, advancing the hypothesis that an adequate conceptualization of contemporary international trends in production and the dissemination of technologies on a world scale, would make it both possible and timely to conduct a comparative analysis between countries pursuing different technological policies, and to try to verify certain hypotheses concerning the orientations of the educational systems, employers' training and recruitment strategies, the diversified functions of the educational planner, etc.

This second approach naturally rests on the assumption that, over and beyond the branch-specificity of their local productive systems, the developing countries' technological systems, and hence their employment and training systems, have grown up around a handful of broad families, and that it should be possible to draw up the outlines of these families by means of research, and, by analysing them, to draw certain useful lessons for educational planning purposes.

However, it is clear that these two approaches are not necessarily contradictory. Comparative analysis of contemporary experiences must of necessity take into account the historical dimension of the growth of educational and technological systems in whichever country one happens to study.

The Institute's planned research in this field is designed precisely to discover how the educational planner has contributed or could contribute to the development of human resources as necessitated by this or that type of technological policy, given that this aptitude is itself dependent on each educational system's particular history, which has shaped its structures and its real and institutional abilities to respond to the demands of the planner and the decision-maker.

Conclusion: remarks on the debate between educational specialists and development economists

It is also worth pointing out that the discussion provided a useful opportunity to expound and compare the views of specialists from a variety of backgrounds which recent history has done little to bring together. Development economists have taken some time to grasp the fact that discussion of the nature and means of development has major implications for education, because education is a slow but decisive process of redistribution of social influence and power which, if properly guided, is an essential tool for the redistribution of world scientific and technological capabilities.

Educational specialists, after having long believed that education was an outstanding instrument of economic progress and equality of economic opportunity, have recently begun to discover the virtues of an analysis of the development process which explains the resources available to education and the social and technico-economic conditions in which the products of the school system are incorporated into the world of work. They are abandoning the euphoria of the 1960s, and are humbly setting about trying to understand the constraints revealed by the scientific analysis of under-development.

Dialogue between these two categories of specialists is not always easy, but it is to the credit of the International Institute for Educational Planning that it provided a forum in which it could take place.

The diversified educational field: reflections on a discussion

Introduction

The seminar debate on Theme II was concerned with a wide variety of educational phenomena. The discussion elicited an equally wide diversity of points of view, theoretical concerns and personal experiences. Those in the business of organizing and running various programmes of non-formal education took a particular interest in questions of co-ordination and planning, others had come to this seminar as specialists in economic, technological or socio-cultural aspects of development, eager to engage the educators in a challenging dialogue about the rôle and developmental impact of diversified education. Still others, and a rather sizeable minority at that, were simply intrigued by the fact that so much of this diversified field of education is yet to be explored and charted; their focus, accordingly, was on taking stock, tracing the articulations between different programmes and explaining the social needs and driving forces behind them.

These, then, were perhaps the main strands of a discussion extending over several days: the preoccupation with planning or rather, the potential for planning; the rôle of diversified education in development, and the structure and processes which may be taken to characterize this very diversified field.

The following observations pick up these three strands where the seminar had to leave off, taking the last one first.

A. Exploring the uncharted

The diversified educational field calls, first and foremost, for an exploration and structuring of what is still a largely unknown, rapidly evolving educational reality, often substantially different from one country to another. Starting in the early seventies, this call has been answered by a profusion of case studies and large research projects whose aim it was to shed some light on the shadowy world of learning outside the school walls. Progress was sought and achieved on different levels:

—A first level has been one of deductive and fairly abstract conceptualization

of the main dimensions which seem to constitute the diversified educational field.

—A second level has been preoccupied with a pragmatic stock-taking of the great variety of education and training programmes encountered in this field.

—A third level, finally, has entailed the normative, but still timid, attempt to re-structure the diversified educational field in the interest of a closer corrspondence between the characteristics of various programmes and the needs of particular social groups.

1. Deductive models

How is the diversified educational field conceived on the deductive, relatively abstract, level? Typically, what has been attempted here is an understanding of the entire field in terms of a single, principal property which the various programmes possess to a greater or lesser degree. This leads to the idea of an educational continuum, along which different programmes are situated in a kind of centre-periphery relationship. The school, not surprisingly, is invariably seen as the centre, whereas the periphery tends to be represented by incidental learning and basic socialization processes.

A more detailed examination of this line of analysis offers certain rather interesting theoretical nuances, depending on how the educational continuum is defined. Three dimensions can be distinguished:

—the continuum extending from *formal* education to *informal*, incidental learning (criterion: degree of formalization of learning processes);

—the continuum between purposely *detached* education and one that is fully *embedded* in its environment (criterion: degree of integration);

—the continuum between education rewarded by *tangible* credentials and education undertaken for its *intrinsic value* (criterion: degree of transferability of rewards).

The first variant is exemplified by Philip Coombs' well-known definition of formal, non-formal and informal education. According to this view, at the centre of the diversified educational field is the system of formal education; its structures are hierarchic, learning occurs in a rigid chronological sequence, standardized knowledge is transmitted by formally qualified teachers, etc. These 'formal' features are progressively relaxed as one moves through the non-formal, yet still organized, sector towards the periphery of informal learning where individuals absorb learning from a variety of educational influences in a completely open, unorganized and uncontrollable fashion.

The second variant sees the educational continuum defined less by the degree of formalization than by the degree to which learning is detached from, or integrated with, the environment. Cole Brembeck is amongst those stressing this particular aspect. Again, it is the school as a 'ghetto of the young', removing the learner from his or her environment, and consciously separating education from practice, which figures as the core or centre of an educational field so defined. Midway through the educational continuum, i.e. where

Coombs would site the arena of non-formal learning, educational programmes are geared more to environmental needs, admit demonstration, observation and practice as legitimate means of education, and step out of the physical confines of the class-room. At the periphery of the educational field, finally, learning blends with life and work to the point where they become inseparable and impossible to distinguish. Such a vision, to be sure, is more than a theoretical construct. It has its advocates among the most practically experienced educators: 'Mobilization... means ensuring that every school is also a farm, workshop and factory, and that every farm, factory and workshop has classrooms, libraries and cultural facilities attached. The point is to make education part of the productive forces...' (Patrick van Rensburg in his seminar paper).

The third variant considers the degree to which the rewards for learning are transferable as the most important dimension along which the diversified educational field may be structured. The school, seen again as a sort of core system, awards credentials which, whilst graded and specialized, provide access to life-long rewards: the claim to status and economic gain that they entail can be cashed in not immediately, but over a life-time. As regards most education and training programmes organized out of school, rewards usually take the form of expected and/or promised improvements in living standards—better health, higher agricultural yields, self-employment, etc. These are tangible, not transferable; immediate not deferred, and linked to the act of learning. At the periphery of the educational continuum, the rewards are inherent to the act of learning, as in the case of self-motivated, spontaneous or incidental learning which is its own reward.

How relevant are these abstract models; what is their explanatory value in the light of the complex and very concrete reality of diversified educaton?

Clearly, to portray this reality as a one-dimensional continuum is an oversimplification. Yet, the features to which each dimension calls attention are undeniably significant not only in terms of theoretical comprehension, but also in terms of practical action. In fact, many campaigns to reform education have been led under the banner of 'de-formalization', or of integrating education with its environment, for example, by linking it with productive work, or of fighting the 'diploma disease'.

As implicit models guiding political action, these seemingly abstract conceptualizations of the diversified educational field have thus been surprisingly powerful, all the more so, as the three variants are in fact closely linked and mutually reinforcing.

De-formalization of school structures tends, at the same time, to break down the separation of learning and action. Using the environment as an educational resource, learning from peers, elders and craftsmen, in turn relativizes the formal set-up of teachers, classrooms and books. Loosening the hold of formal credentials over what is learnt in school would greatly enhance the scope for non-formal learning, at the same time as facilitating the integration of learning with social praxis.

2. Taking stock

These abstract models, as we suggested earlier, have not been the only attempt at exploring the uncharted field of diversified education. At a much more pragmatic level, research is endeavouring to take stock of the range of existing programmes, their characteristics and, what is more, their interrelationships. Yet, at the seminar and elsewhere, caveats have been voiced against such attempts on several grounds. First, taking stock might mean taking over. Like other explorers before them, those apparently concerned with charting the unknown field of diversified education might actually be more concerned to rule over it. This caveat is, without doubt, well founded. In more than a few countries, comprehensive inventories of all existing non-formal education programmes, if carried out with the support of the Ministry of Education or of a central planning agency, might very well upset the precarious balance between public, private and parastatal competencies in this field.

At the same time, the general state of ignorance seems to be such that one risks—as one seminar participant put it—collecting answers before knowing the questions. In fact, encyclopaedic data-gathering may easily lead to a point where analysis gets drowned in a pool of information that addresses neither policy options nor research concerns. As certain recent examples have shown, the number of non-formal education programmes 'discovered' by this line of research may, in any country, be up to ten times higher than previously reckoned.

A particular difficulty here is to decide on where best to draw the line between the diversified educational field and its environment. To all intents and purposes, this line is an arbitrary one: at its periphery, diversified education blends with social practice to the point where it is impossible to tell one from the other. What certain authors suggest are pragmatic compromises: to take 'organized' educational activities only; to disregard activities in which education is not the 'principal component'; to limit oneself to programmes aimed at some form of 'socio-economic advancement', etc. Needless to say, each of these formulas sacrifices a potentially important part of reality.

The conclusion then, is obvious: inductive, pragmatically motivated research into the universe of diversified education must decide *a priori* on the questions to which answers are sought; it must be disciplined by a limited number of variables combined in a relevant analytical framework.

In this mode there are four possible dimensions through which we may be able to map the diversified educational field:

—a mapping of institutions: which public-sector agencies, as well as parastatal and private bodies, are involved in the broad field of diversified education?

—a mapping of programme objectives: in what way does the diversified field of education complement and broaden the set of objectives pursued by the school system?

—a mapping of clientèles: what is the typical profile (age, sex, occupation, income, socio-cultural background) and number of those participating in different education and training programmes?

—a mapping of resources: what kinds of human, material and financial resources are allocated and used in what kinds of programmes?

Supposing that any given programme from within the diversified field of education could be described in terms of these few dimensions, it should then be possible to identify some of the chief structural characteristics of the field: which institutions serve which kinds of clientèle, pursue what objectives and mobilize what resources for their programmes? Which client groups, on the other hand, take an interest in what kinds of programmes, offered by which agencies? How do programmes, pursuing one set of objectives and open to particular clientèles, compare with other programmes in terms of resource use and cost-effectiveness, etc?

Two further steps will be required to place this structural analysis of diversified education in a more meaningful context: the first step is to consider the articulations and linkages between different programmes; the second one involves looking at diversification as a process, as a reflection of certain historical determinants.

The linkages which may exist between one and another form of diversified education, either *de facto* or officially recognized and encouraged, can themselves be of different kinds, e.g.:

—programmes A and B may share certain resources and facilities in the interest of greater cost-effectiveness;

—between programmes A and B there may be an assimilation of structural features, a process which may be either mutual or uni-directional;

—formal equivalencies may be established between different stages of programmes A and B;

—there may be *de facto* mobility of learners from programme A to programme B or *vice versa*.

Such linkages, varied enough to warrant a stock-taking exercise of their own, are of particular interest in the case of relationships between the school and certain non-formal programmes: a literacy programme for parents can provide essential 'reinforcement' to the primary schooling of their children and *vice versa;* non-formal basic education for rural youth may be a genuine 'substitute' for formal schooling; vocational training camps for school-leavers may be an indispensable 'supplement' to their formal education; evening classes at a community college may effectively 're-integrate' an urban employee into formal university education, etc. On the other hand, certain programmes of non-formal education may be a 'radical challenge' to the conventional system, impossible to relate or reconcile with the educational objectives pursued by the government.

There has clearly not been enough research to throw light on the nature and policy relevance of these linkages and incompatibilities. No doubt, such research would need to probe deeper than an exploratory, pragmatic inventory of the diversified educational field would normally be expected to do.

A similar need to probe more deeply appears in respect of the historical, process aspects of educational diversification. In the first place, there is the

question whether this process has involved a genuine transformation of the established educational mould, or rather a re-discovery and revival of certain historical antecedents of formal schooling. There is little doubt that it needs to be understood as a reflection of economic, technical and socio-cultural evolutions. For example, non-formal education (mass-literacy campaigns, for example) frequently assumes a pivotal rôle in periods of political and social upheaval. Can one infer, as one seminar participant suggested, that it tends to expand in times of crisis and contract in times of stability? In any case, there is no doubt that many non-formal programmes have emerged in direct response to the crisis of formal schooling.

3. Identifying rôles

There is very little obvious logic in the way formal schools and non-formal programmes share and divide educational functions at present. If certain critics are to be believed, non-formal education frequently serves as a kind of support structure, erected in haste to prevent the total collapse of the socially lop-sided, over-expensive temple of formal schooling.

Why does the formal system essentially concentrate attention on children and youth, while for the remainder of one's life, learning needs are generally catered for (if at all) by a variety of out-of-school programmes? What is the wisdom of adults learning on the job and from experience, while children are segregated in schools? Are the things rural people need to learn really best provided for through practical demonstration that lacks theoretical depth?

A more than cursory answer to these questions would need to determine the relative strengths and weaknesses of different forms of diversified education in meeting the learning needs of specific clientèle groups. The aim and perspective of this line of research would be to establish a maximum of correspondence between programme characteristics, on the one hand, and client learning on the other.

Programme characteristics include the core objectives of a particular programme, the learning environment it typically employs, and the teaching/learning methods it favours. Client learning encompasses both learning needs and learning styles—categories which vary considerably not only with age and socio-economic position, but equally with the cultural features of the society or social group. The learning styles of children—based on observation, imitation, participation—tend to differ significantly from those of adults, as they will between a pre-literate, rural milieu and an urban setting permeated by the printed word. Learning needs, in turn, are bound up with a hierarchy of general needs—more intimately, it seems, where individuals or groups still grapple with basic problems of survival and safety. A plausible hypothesis may be that the relative importance of education rises, and its nexus with physical needs decreases, for learners primarily interested in meeting higher-order needs for self-esteem and self-realization. It is noteworthy that the seminar saw the theoretical and practical elaboration of the concept of 'learning needs' as a

particularly important priority for further research. Learning needs would have to be functionally linked with the economic, social and cultural life needs of specific population groups, and should be much more comprehensive and broad-based than the learning objectives behind conventional school curricula.

Perhaps if these very sketchy ideas were to be pursued more systematically, it would eventually be possible to suggest a re-ordering of the rôles played by formal, non-formal and informal education in a diversified learning system that makes life-long learning possible for all groups of society.

B. The development perspective

A major preoccupation of the seminar was to assess the diversified educational field in terms of its pertinence to, and its impact on, development. The term development itself is complex. Moreover, as the seminar did not fail to point out, its content has been contested and significantly redefined over the past two decades. Bearing this in mind, three problem areas emerged as the centre of the seminar's debate:

—the manner in which diversified education links up with the world of work, broadly defined to include both the modern, industrialized and the traditional, rural sector;

—the rôle which diversified education plays in the process of reproduction and/or transformation of social structures;

—the potential of diversified education for autonomous and authentic cultural development.

1. The world of work

How well does diversified education, with its predominantly short-term programmes organized by a host of public or para-statal agencies, but notably also by industry itself, meet the requirements of the world of work?

As far as the modern wage-sector is concerned, a diversified educational system appears to have a significant development impact. For a variety of primary industries, manufacturing and tertiary services which make up this sector, diversified education seems to facilitate both the initial insertion of the labour force, and the structural re-conversion of its individual members in the wake of technical progress. The argument behind this claim is threefold.

First, diversified education in principle relieves the system of schools, colleges and polytechnics of the exclusive burden of providing for occupational specialization. True, some of the most prestigious formal institutions have assumed this task over a long time, and with undeniable success. But in future, the formal system may become increasingly ill-equipped to undertake this task alone; already today it becomes less and less possible to anticipate and train for newly emerging occupations, or even to take into account the rapidly changing profile of existing ones; consequently, the school system is forced to invest in costly training facilities and equipment which become technically obsolete at an

ever more rapid pace. If relieved of this responsibility, the school would be able to assume its real function of providing a flexible and polyvalent educational basis for all.

Second, diversified education has re-focused attention on the educational potential of the world of work, which can no longer be viewed as the very antithesis to the act of education. This rediscovery of the educational value of work—which sociologists such as Alex Inkeles even managed to measure statistically—is probably the most significant result of the spread of diversified education. The interpenetration of two hitherto separate spheres—education and work—holds out the prospect of greatly enhanced individual mobility, from jobs to learning and *vice versa*. Already the notions of self-learning, or 'experimental learning', have been gaining currency. In the United States, hundreds of colleges co-operate in a scheme for the certification and accreditation of learning gains acquired at the place of work. Similarly, for the USSR, a seminar participant traced the future perspective of educational development as follows: 'The introduction of work in the sphere of education, and *vice versa*, amount to the creation of a synthesis of education and productivity, and hence a tendency to establish a single complex of education and production, within which the life of every citizen of socialist society will unfold.'[1]

Third, and in a more practical vein, the growth of diversified education has helped mobilize the considerable resources and know-how of industry in support of educational systems which, in too many countries, are blatantly out of tune with the qualitative and quantitative requirements of the world of work. In a majority of industrialized countries, the involvement of industry in providing and financing vocational/technical training has by now taken large proportions and in many cases been sanctioned by legislation. The fact that industry has willingly gone along suggests that it sees itself as one of the prime beneficiaries of a diversified educational system in which it shares influence and responsibilities with the State.

On the other hand, a system of this kind may jeopardize employment stability. This is an argument which deserves to be taken seriously, especially by those who see only the positive side of educational diversification, i.e. the greater scope for occupational mobility. The industrial worker may have a polyvalent school education but no specialized vocational qualification, and can be adjusted and re-converted at will and in relatively short on-the-job training cycles; this bears an awkward resemblance to the industrial reserve army of the 19th century. The occupational mobility afforded by continuous recycling is often the exact opposite of meaningful and individually satisfying professional growth. Obviously, the crucial point is whether, in the practice of diversified education, the possibility for enterprises to re-convert their workers implies an obligation to re-employ them, and a say in this matter for the workers concerned.

1. Vladislavlev, A.P., 'Lifelong education: a development concept', in Volume II of this publication.

The effects of diversified education on development are much more ambivalent when it comes to the traditional sector of Third World economies. This sector includes not only the rural economy, based largely on subsistence agriculture, but also the informal sector composed of cottage industries and small workshops situated at the urban periphery, for a very large portion of the urban labour force in developing countries, on-the-job training in this context is still the dominant mode of skill acquisition.

The trouble is that the host of education and training programmes tailored to the needs of this traditional sector may well reflect an educational dualism which is meant to stabilize and perpetuate the economic dualism on which many developing countries are founded.

There is, indeed, reason for being sceptical: the unfolding of diversified educational opportunities has apparently not done away with the basic fact that sustained and successful school education tends to remain the preserve of better-off urban dwellers and their offspring. Even historically, some of the early forms of diversified education had a built-in class bias: they were to offer an educational alternative to all those for whom the urban model of formal schooling was thought to be 'inappropriate'—in the richest shades of the term. Significantly, the aim of slowing down rural-urban mobility has been a major consideration behind many plans for non-formal ruralized forms of education.

In this way, what was initially well-intentioned pedagogy may well have joined with economic ideology to bifurcate rather than diversify education. However, educational reforms are today based on sufficient experience to avoid repeating the same mistake. The seminar debate on this point was a clear enough testimony: in designing programmes of non-formal education for target groups in rural areas or at the urban fringe, ladders and bridges which link them with the formal school system must be considered a *sine qua non*. For the diversified educational field as a whole, the task of ensuring openness and linkages, both horizontally and vertically, is therefore vital.

Furthermore, while educational planners cannot *a priori* abolish social reward structures skewed in favour of formal education (in terms of occupational opportunities), they must all the more guarantee the economic viability of non-formal programmes geared to local production and self-employment. A strong case can be made out for such programmes to be financially self-supporting; what is more, follow-up support measures (credit, physical inputs, marketing outlets, etc.) should be planned in such a way that the economic pay-off to the individual from this kind of non-formal education offsets the appeal of formal credentials.

2. Social reproduction

A discussion of how educational diversification affects the social dimension of development i.e. the process of social reproduction and transformation, must of necessity revolve around the credentialling power of the school.

The process by which formal education has become the principal status-attribution mechanism, and the way in which school certificates tie in with the existing social reward structure, all this has been convincingly demonstrated by many writers, both in theoretical and in empirical terms. In developing societies, in particular, the erosion of traditional patterns of élite reproduction—kinship and tribal groups, religion, castes and professional guilds—has tended to create a vacuum. In such a context the educational system, installed by the colonial powers, arrived conveniently and irresistibly to fill the gap.

Given this line of analysis, the verdict of its advocates concerning the rôle of educational diversification is predictable: inasmuch as formal education acts as an instrument of social reproduction geared to élitist interests, the function of other forms of education can only be one of 'cooling down' the aspirations for social mobility and transformation among the lower classes. This process is obtained, they argue, by giving them a semblance of education without the magic properties of formal schooling.

Presented in this way, the argument is tautological and hence unassailable. The question, and a decisive one at that, is whether or not it holds when seen in a development perspective. For if one projects the dynamics of educational growth (of which diversification is a key aspect) into the future, two things are likely to happen.

First, what makes formal education so attractive today is the high social status it confers, coupled with its economic profitability. However, the gap between these two will widen. Already, a large number of educated unemployed are witness to the fact that social and economic motives for schooling, particularly for higher studies, no longer coincide. Long waiting periods, and the safety-net of extended families, still enable many of them to bridge this gap. The question, however, is just how much longer the high social status conferred by formal diplomas can keep its appeal in the face of low economic rates of return. Sooner or later, the credentialling power of the school is bound to be eroded by the realities of demand and (over-) supply.

Second, the credentialling power of schools requires that the bulk of education take place before a person enters working life, and that status attribution occur essentially (though not exclusively) at that point in time. Were education and work not sequential but parallel or alternating processes, this would necessitate new factors and processes of status attribution. But the present trend is precisely one towards education recurring throughout working life. If this continues, work and education will enter into a new kind of synthesis. Indeed, for those parts of diversified education which are geared to modern-sector needs and ensure the reconversion of qualified manpower in line with technical progress, much of this is already now a reality. It is difficult to see how formal education would avoid being drawn into this process. In a future perspective, therefore, two assumptions appear plausible: firstly, the attribution of social status will occur progressively over time, rather than at a single point, and secondly, formal education will increasingly have to share its present monopoly of providing credentials both with work experience itself and with

individuals' performance in life-long education and training processes. It will be increasingly difficult for the élites to control this evolution in the interest of maintaining the social *status quo*.

In sum, therefore, there is some prospect that the process of diversification will turn education from an instrument of élite reproduction into an effective conveyor of social mobility, going a long way towards vindicating the credo of the liberal philosophers who saw education as the main equalizing force in society.

One wonders, of course, to what extent the grass-roots practice of non-formal education today justifies this optimistic outlook. There is no doubt that functional literacy programmes, for instance, or co-operative education, or training provided in the framework of rural self-help and self-employment programmes, have raised social consciousness, brought forth popular participation and, in some cases, at least, built new structures of social leadership. This in itself is social development: 'For people who have been slaves or have been oppressed, exploited and humiliated by colonialism, 'development' means 'liberation'. An action that gives them more say in determining their own affairs and in running their lives is one of development, even if it does not offer them better health or more bread' (TANU Guidelines, Dar-es-Salaam, 1971). It is, however, equally clear that the absence of these very factors has stifled many programmes of non-formal education. And how is one, finally, to judge the rôle of non-formal education in social development, if it is realized that in more than a few countries it has primarily served as an instrument for political indoctrination and for the implantation of party structures?

3. Culture

The analysis of the rôle of diversified education in cultural development obviously depends on how one defines culture and how one situates this concept *vis-à-vis* the economic and social dimensions of development. A fairly influential school of thought—less so today than during the first and second development decades—equates cultural development with modernization. A 'modern outlook', which subsumes values and behaviour patterns under the principle of managerial rationality, and which fosters a healthy sense of material achievement, is in this perspective the chief guarantee for cultural development. Because so many non-formal education programmes are part and parcel of externally financed development projects, diversified education has no doubt had its share in spreading (much more widely than the school alone could have done) the message that cultural development amounts to modernization—be it through health or nutrition education, population education, in and out-of-school, or agricultural extension in the wake of the Green Revolution.

Another, distinct, approach argues that authentic cultural development must build on existing traditional culture, must recognize and encourage cultural diversity, and enlarge the cultural space by mobilizing a variety of actors and

environments. Again, it would seem that certain forms of diversified education align themselves naturally and effectively with this particular view of culture. As an alternative to the school system, non-formal education can counteract the imposition of a dominant cultural model—be it foreign, or that of the urban élite. For through its use of local languages, it challenges the medium, and through its less formal learning environments, it opposes the hidden message of schooling. Many developing countries, faced with problems of tribal, religious or linguistic pluralism, deliberately encourage qualities of diversified education.

From these arguments, one has to conclude that the effect of diversified education on cultural development is highly ambivalent. It seems capable of serving with equal ease two opposing concepts of cultural development.

There is a school of thought that manages to resolve this contradiction, but only at the cost of posing a new dilemma: their claim is that education has only an indirect and minor rôle in shaping cultural development. Culture, in this latter view, is primarily a reflection and symbolical representation of a material reality shaped, in turn, by the technico-economic structures of production and consumption. Therefore, whether diversified or not, education cannot be an immediate agent of cultural development; its link with culture passes through its long-term effects on technological and economic development.

As long as alternative definitions of culture retain their strong ideological components, it is difficult to come down on one side or the other of these arguments. The gap between global theorizing and detailed empirical research has probably become too wide. To narrow this gap, a great deal more will have to be found out about the relationships between specific programmes of diversified education and specific, well-defined manifestations of culture in different environments.

C. Designing diversity

Everyone agrees that a sense of purpose and direction should be introduced into the uncharted and unplanned field of diversified education. Yet, debates on the scope and limits of planning in this field are often very emotional—the advocates of planning pleading the innocence and rationality of their intentions, while the opposing camp quotes Erich Schumacher or conjures up visions of 1984.

There is little point here in trying to defend one or the other position. It is more useful to clarify certain terms and arguments employed, and in this way to relieve the debate of some of its ideological burden.

1. Programme planning *versus* systems planning

A first and very necessary distinction is that between systems planning and programme planning.

Programmes are being planned, managed, evaluated, revised, enlarged or closed down all the time, and in each and every branch of the diversified

educational field. It is of crucial importance to study the practice of planning at this level, to draw lessons from its failures and successes and to disseminate the results as widely as possible. The diversified educational field is strewn with the débris of programmes that have foundered through faulty planning. Orthodox school planning, significantly, is little help, partly because its experience has been in an entirely different arena but, more importantly, because its task is less one of creating and implanting than of maintaining a system already in place.

To improve existing methods of programme planning is, therefore, a major challenge, as several seminar participants pointed out. But the debate for and against planning was not about programmes at all. It was about planners' attempts to turn diversified education into a system. This becomes clearer if one looks more closely at the terms and arguments used by the advocates of planning.

Planning, in their view, is needed to make the whole field of education more transparent and to improve the chances for greater mobility between the various branches of diversified education. It should prevent duplication and detect gaps. It should ensure a reasonable level of common standards of quality and provide for 'parity of esteem' (Manzoor Ahmed[1]) between formal and non-formal programmes serving similar objectives. It should, finally, furnish criteria to govern the allocation of resources throughout the diversified educational field.

The view that diversified education forms a system is implicit in these arguments. Terms such as transparency, mobility, non-duplication, parity in status and quality, etc., relate to the notion of a system—i.e. in a general sense, to the relationships between parts. In the language of systems-analysts, diversification or differentiation has occurred as a developmental response which enables systems (in general) to cope with the increasing complexity of their environment, especially the structure of social needs and demands. As a counterweight to this differentiation, the system develops a number of integrative mechanisms which hold its elements together and permit them to interact. Of these integrative mechanisms, planning in the sense of 'systems planning' is the most important one.

The question is whether systems planning is possible without getting involved in programme planning. Can planning in the field of diversified education, regardless of who undertakes it, be limited to better mobility between programmes, rendering the field as a whole more transparent, ensuring equivalent status, safeguarding quality, etc., without getting mixed up in the business of planning particular programmes as such? Can general resource allocation criteria be established without curtailing programme autonomy?

In centrally planned political systems the problem obviously does not pose itself in these terms. By contrast, for systems which admit free enterprise in

1. Ahmed, Manzoor, 'Planning issues in basic education: need for testing a new paradigm', in Volume II of this publication.

education and elsewhere, the question is very relevant indeed. For such systems it will be difficult to indulge in systems planning but stop short of programme planning—particularly if the power to plan were to be handed over to the State. In education, as in other fields, public involvement has a well-known way of gathering momentum and of gradually encroaching on areas as yet outside its control.

Clearly, if the notion of planning the diversified educational field is to gain currency in countries that are not centrally planned, a take-over of planning functions by the State is likely to be self-defeating. It is much more plausible to propose that planning functions be so conceived as to represent the variety of public, private and parastatal agencies active in the field of diversified education. At the same time, an acceptable distribution of planning competencies between the central, regional and local level may have to be sought. The question, of course, is whether planning should be cast in any permanent, institutional mould and, if so, what specific institutional planning set-up would be most feasible. Another question, equally important, is whether planning can be introduced gradually, in a sequence of 'graded responses' as a seminar participant put it.

2. Graded planning responses

In fact, the debate at this point assumes too often and too quickly that planning in the field of diversified education would automatically be patterned on the planning methods practised in the school sector. However, planning in the 'minimal' sense suggested above —i.e., providing integrative mechanisms to offset increasing systems differentiation—disposes, in principle, of a much more varied repertoire of instruments and approaches than textbook definitions of educational planning propose. It seems very important that the theory of educational planning should advance on this particular front.

Tentatively, one can distinguish the following planning approaches, graded according to the degree of intervention each of them implies:

—*Planning as needs assessment:* this, the least 'interventionist' form of planning, is limited to helping different social groups articulate their needs, and to having the results assessed by the various agencies involved in the field of diversified education; the system can, in this way, situate and readjust itself in relation to its environment.

—*Planning as information exchange:* this approach is much less non-committal in that it requires the co-operation of different agencies in making the diversified educational field more transparent; the planner functions here primarily as a 'broker' of information which is essential for the purposes of guidance and counselling.

—*Planning for mobility:* planning to increase individual mobility in time and space represents a significant extension of the two previous planning modes. It seeks to bring about a degree of coherence in time, i.e. the possibility of re-admission to a given programme after a period spent in other branches of

diversified education, or in some cultural, social, or economic activity; likewise, it promotes openness in space, by establishing ladders and bridges between programmes, together with mechanisms for the accreditation of qualifications and certificates. In this way, what may today be an assortment of educational, economic, and socio-cultural activities can ultimately be transferred into a coherent whole which allows individuals and groups at all times to claim recognition of their past training and experiences, and to build their itineraries according to their respective needs.

—*Planning as resource-sharing:* in an even more active mode of intervention, planning can facilitate the pooling of overhead facilities and resources between different programmes or agencies, in the interest of greater economy. For example, central printing facilities can be installed at provincial headquarters to provide post-literacy readers for all programmes concerned in the region; a variety of out-of-school programmes could use existing school facilities; industry might open up its on-the-job training facilities to vocational schools, etc. Without infringing upon the autonomy of particular programmes, such arrangements are possible by mutual agreement.

—*Planning through incentives:* adopting a practice current in many decentralized, federally-structured school systems, planning might attempt to steer a diversified system into desired directions through incentives held out to agencies which agree to establish a certain type of programme, cater to certain clientèles, experiment with new programme contents, etc.

By minimising interventionism and using its repertoire of instruments subtly and flexibly, a planning body incorporating the different agencies which are active in diversified education should be able to function. But how could it tackle its tasks, and where would it start? There are two final considerations which can be offered.

First, planning in the field of diversified education might need to be subjected to a 'principle of subsidiarity', somewhat analogous to the legal principle practised in certain federal systems which seek to limit the scope for State intervention. The planning body would, in that case, engage in planning only where there is positive proof that the objective at hand could not be achieved by the different programmes each acting on its own initiative. Or, in economic jargon, where there are obvious external diseconomies which cannot be handled within a 'free' educational enterprise.

Second, planning should perhaps be called upon to draw its own limits, by identifying and protecting certain 'zones of autonomy' within the wider field of diversified education. The formal system itself has done this in quite a few cases—not only in respect of university autonomy, but also through non-interference in certain experimental schemes accompanied by action research and evaluation over a substantial time-period.

In diversified education, such experimentation and varied local initiatives are even more common and, at the same time, more necessary. To safeguard this potential for self-renewal may well be the most important contribution of planners to the design of diversity.

The educational planning process and the information that conditions it: reflections on a discussion

Introduction

While the principal concern—which emerged quite clearly on the occasion of this seminar and which is uppermost in the minds of the professional educational planning community—is to identify its real rôle in the world of education as stated in the general introduction to this volume (pp. 9–10 above), it is nevertheless out of the question to begin to examine (or to embark on a research and study programme concerning) the real rôle of educational planning without first of all situating it in its economic and social context.

It is pointless to try to discuss educational planning in the abstract, as that would not reflect situations from which generalizations can be drawn. On the other hand, by making certain assumptions drawn from twenty year's experience of real-life planning, it is now possible to set out a number of analytical propositions capable of being verified or refuted. However, it is first necessary to define what we mean by planning within the framework of previously-identified economic and social structures.

If we take the centralized planning systems, for which planning in general is a system of government, we find first of all that the meaning given to planning in the free-market economies is quite distinct. Indeed, the processes and methods in application in the socialist countries indicate that the system remains the frame of reference for political and economic options and decisions, for the mobilization of resources and the implementation of the resulting plans (including the system of control and sanctions). This should in no way be taken to mean that the experience of central planning has not itself encountered new problems as and when international economic problems have begun to make themselves felt and, secondly, as intermediate structures have begun to assume new responsibilities relative to what had started out as a cogent vision of a system expected to function predictably. The case of the Soviet Union is highly interesting as it is planned to set up, in addition to the 'fundamental' school sub-system (from kindergarten to university), a second sub-system known as an 'auxiliary' sub-system. For each individual, for society, and for the different production systems, this sub-system would comprise appropriate, flexible,

short-term ways and means designed to meet individual and collective demands for training and education. Now this approach would appear to indicate that the 'functional' approach to planning, which sought to explain all measures taken with respect to educational structures and means at secondary and higher levels in terms of the country's manpower needs at all levels and of all kinds, has undergone considerable change.

Similarly, in Hungary, the 'parallel' system of higher education, based on either correspondence courses or distance learning, represents the burgeoning and development of a personalized system which responds more to social demand than to any planning of whatever the economy might strictly need. In Poland it looks as if, despite attempts to predict what the educational system ought to be turning out in order to meet the needs of the productive system, there is now, at the technical and higher levels, a plethora of trained personnel and graduates who do not necessarily find employment corresponding to their aspirations in the productive or service sectors.

In Cuba, lastly, while the educational system as a whole is designed in response to a deep-seated ambition for social advancement and preparation for work, one can scarcely claim that the system of financial controls corresponds to the model of centralized planning as worked out by the Soviet Union in the course of its long experience, or that the level and types of training provided are perfectly suited to the qualitative demands of the productive system.

While it was in no sense the purpose of this seminar to examine in detail the planning experience of the centrally-planned countries, we were left with the general impression, although this was not spelt out in any detail, that these systems are by no means absolutely perfect. Nevertheless, planning in these countries does represent a general system of decision-making and information which, despite problems of adjustment to contemporary technological and economic demands, in essence remains a frame of political, administrative and professional reference.

This is by no means the case for the great variety of non-centrally-planned countries which have nevertheless applied their own 'versions' of planning since the last world war. In the application of these versions we find a wide range of patterns, from the orchestration of means and the mobilization of resources to participation in the complex process of defining 'major' objectives.

A. Two key questions

Because the work of the seminar focused on non-centrally-planned state structures, it was essentially around their experience—notably in the developing countries—that most of the discussion took place. Two fundamental questions need to be tackled, it was agreed, in order to understand how educational planning has existed, or survived, over the past thirty or forty years.

First, how is planning *determined?* How important is, and what are the consequences of, participation by political organs, the various administrative

echelons, associations and the public in general, in the framing and implementation of objectives? How do external factors, e.g. public or private international or foreign aid-donor institutions, influence the shape and content of educational planning?

Second, how is this planning *used?* Is it used for purposes of political or social control, or merely of 'legitimization'? Does it take the form of general indications intended in fact for the public sector alone? Lastly, is it an essentially pedagogic process, in which considerable efforts are now made chiefly for the purpose of informing the 'actors' at different levels of the objectives and orientations of education while seeking gradually to persuade them to accept a certain measure of discipline?

B. Answers on two levels

The answers to these two categories of question lead to a number of assumptions regarding what is expected of educational planning. In seeking this perception of planning, we need to try to adopt two distinct standpoints relative to planning itself, namely *upstream* and *downstream*. Indeed, whatever the nature of planning itself—whether at the central level, encompassing the educational system as a whole, or at the regional level, or again with reference to the planning of a given educational programme such as the introduction of science teaching, for example—it nevertheless remains that, *prior* to what planners may do, and *after* they have done it, other 'actors', whose task is often considerably more decisive or more directly operational than that of the planner, have their part to play and depend on—or make use of—planning. So what we want to do is determine the nature of planning as part of a vast and complex mechanism that embraces the entire educational sector. This is what the seminar discussions tried to do by means of a succession of approaches, attempting to 'see' planning through the eyes of the people that stand 'upstream' and 'downstream'.

1. 'Upstream' perceptions and uses of planning

To begin with, certain participants provided an opportunity of examining the way in which planning is perceived *upstream*, that is at a hierarchically *superior* level (notion of 'place'), and chronologically *anterior* period (notion of 'time'), to the process of planning itself. Decision-makers and officials, who are the actors at this time and place, will lay down the broad options which planning is then expected to put into effe[illegible]s at this point that influences outside the educational sector intervene, con[illegible]ioning not only the availability of resources but also the nature of the national political 'project'; such sources of influence are various state authorities, outside lobbies and the general public on the one hand, and forces that work in the national private sector and of foreign origin on the other.

It is at this level that the margin for manoeuvre within which decision-makers

may try to introduce something 'new' exists. It is the prerogative—or responsibility—of these authorities to define the resources—mainly financial—which, bearing in mind the pressure and competition from other sectors, will ultimately be maintained or reduced relatively to the original demands.

This margin is in fact narrower than the decision-makers suspect, owing to the weight and inertia of the educational system and the extent of past commitments (the pay of teachers under the authority of or funded by a ministry of education, for example) which substantially shape the possibilities for future actions. It is this mass of inherited obligations, which circumscribe the field of innovation, that is sometimes referred to as 'irreducible'.

It is not strictly necessary to identify the actors involved in laying down broad options at a level hierarchically superior to that of the team momentarily responsible for planning and chronologically prior to the rôle of that team. They may be members of the Executive or members of Parliament, though this makes little difference to the argument, provided they wield a significant portion of responsibility for the organization and definition of state policy. It matters little indeed, for in truth decisions are not linear, and the 'main decision-makers'—whoever they may be—do not retire into some ivory tower in order to examine what needs to be done, reach their decision and then communicate it to the planners. In actual fact, planning is even able to make itself felt upstream inasmuch as the information that it communicates to decision-makers, and the way in which it presents problems and issues to be resolved, will undoubtedly influence the priorities that come up for examination, and very likely the nature of the choices that are eventually arrived at.

What makes this all the truer is that the extent of the (narrow) 'margin', which is conditioned by the 'irreducible' commitments referred to above, cannot be the fruit of political intuition alone, but is on the contrary based on explicit data which the planners are very often called upon to supply, as are other actors as well. What on the other hand is the decision-maker's responsibility, and what is impossible to project, is the way in which he lays down major objectives within the limits of his 'margin'. Each moment in the history of each country is liable to provide a different answer depending on the importance, personality even, of the actors, on surrounding circumstances, both national and international, as well as relations between these actors and the very organization of the educational system, whitch itself represents a political and social force.

This now brings us to the question of how planning is *used* 'upstream'. Three possibilities emerge here. First, the one that reflects the broad mass of cases: planning is a process, or even a structure, for determining, in the light of a previously-defined strategy, the resources required for subsequent allocation in order to achieve a desired end. To be sure, the setting of this end and the definition of the strategy will often themselves be affected by this same planning process. The translation of the strategy and of the resources mobilized is crystallized into a 'product', namely the plan. The plan then becomes an instrument in the hands of the decision-maker, who may then see to it that his

decisions are effectively translated into fact. For this purpose, he may employ the analytical techniques and information that went into the framing of the plan, and which may serve him as a yardstick to measure the progress of his 'project'. In this sense, then, it is essentially a means of *control*.

Other people taking part in the seminar viewed planning as one of the means available to the decision-maker to underpin the 'legitimization' of the state, which he either controls or serves (depending on his 'place'). The existing structure of political authority and power may be legitimized not only through strict application of principles or norms, but also through the prescription and dissemination of various conventions and procedures. This 'legitimization by procedure' may even avoid the need for legitimization by other means, as it enables political authority to be exercised without necessarily worrying about the content for which these procedures were—theoretically—worked out. Planning is essentially a means, in some cases backed by administrative structures, which lends legitimacy to the authorities, but it is not for planning to concern itself with the uses to which this procedure is put, whether to political or economic ends. The use of this system is an end in itself.

There remains a third use for planning, in education particularly, namely as an 'excuse'. This dimension is relatively widespread, particularly when the concern is to devise a scheme whose ultimate aim is to justify calls for foreign aid. Charts demonstrating the growth and evolution of the school system are submitted as 'proof' of the rationality and predictability of this system: under such conditions, how could anyone forbear to supply the additional resources needed to attain the stated objectives? In many cases, though, this is essentially a simulation exercise, for its normative value, as in the case of 'legitimization by procedure', is virtually non-existent. It is not a document intended to serve as a frame of reference for concrete measures, merely a representative document designed to justify a perfectly precise object, namely either to feed public opinion with a 'product' that is regarded as modern because it reflects a certain level of administrative capability, or else to supply outside aid-donors with the expected justification couched in what is considered to be acceptable language.

It is worth recalling at this point, as we shall be doing later on in this document, that all we are talking about here are hypotheses, which will have to be confirmed, refuted, spelt out in detail or enriched by the Institute's planned research programmes.

2. 'Downstream' perceptions and uses of planning

In the attempt to delineate the meaning of planning, already described above, the discussions also sought to adopt a standpoint 'downstream' of the world in which planning takes place, as well as 'upstream'. Generally speaking, the 'place' will be hierarchically *dependent* on the central and superior structures, while the 'moment' will occur chronologically *after* planning has carried out its appointed task. Here again, it was important to determine first the conditions

in which this planning *takes place* and, secondly, the ways in which it is *used*. In either case, the discussion was essentially concerned to build a hypothesis about the way in which planning is perceived, both in its workings and in the uses to which it is put.

The prevailing activity downstream of planning involves actors whose responsibility is to implement the decisions that have been translated into 'strategies' by the planning process. So the life of the administrative and professional machinery of the educational system lies 'downstream' essentially. It is here that the intermediate, regional and local structures come into play, as well as the 'vertical' structures of the central administration, e.g. the Ministry of Education (departments of primary, secondary and technical, etc. education). Those who are in daily contact with the workings of the educational system and machinery all stand 'downstream' of the planning process. Their 'world', which consists of the repeated performance of administrative and educational acts, relations with the communities or groupings in which the 'beneficiaries' of a given educational programme live, is very different from that of the actors in the central planning process; for example, from those whose job it is to standardize and relate to abstract 'means' 'targets' that merely reflect an overall vision—conceived deductively—and not the inductive aggregate of a variety of complex and distinct 'realities'.

'Downstream', the way in which planning is generally used differs greatly from what was originally intended. In certain cases, what had started out as a 'Plan' ends up, for a given level of education or any particular region, as a single project or—at best—as a programme. The problems and obstacles to its fulfilment assume proportions and a relative scale rarely foreseen in the plan or programme originally worked out during the planning process. In other words, this disaggregation of the plan, whether at the institutional or the territorial level, represents a dismemberment which, when theoretically reconstructed, will probably turn out very different from the original plan or programme. Indeed, delays in transmission, the nature of information, the rôle or influence of actors and, perhaps above all, the resources effectively available for solving problems encountered either locally or institutionally, could never be incorporated into a global and fully-integrated vision.

Which means that even 'planning as a set of controls' cannot fully perform its task. Because, for there to be controls, one must first be able to identify, downstream, the elements that made up the framework and orientation of the 'product' that emerged from the planning process. But the disaggregation of the planning 'product' (whether this be a plan, a programme or a project) leads to a degree of fragmentation from which it is practically impossible to reconstitute the original plan. If this reconstruction is effectively impracticable, it follows that control in terms of the original product becomes equally impracticable.

Nevertheless, the 'product' of central or regional planning remains a frame of reference, laying down a kind of horizon, informing 'downstream' actors of the attitudes and expectations of the higher or central bodies. Supposing we are

dealing with control-type planning, the targets set for a given region or locality will fix the scales and guidelines from which the local actors will deviate. The actual variance and the scale of these deviations ought to tell the 'planners' as much about the difficulties of implementation as about their own inability to predict real behaviour (as opposed to simulations based on normative behaviour patterns).

The 'product' of central planning may also be perceived 'downstream' as a means of determining the nature and extent of additional resources. This is because the 'product' is generally accompanied by the resources required for its implementation. However, given that the presumed resources will only very rarely be compatible with needs expressed either institutionally or locally, additional resources will have to be found either locally or through citizens' associations. Here, planning plays a significant rôle by setting the limits to resources supplied by the higher or central echelons, and the obligations upon structures or actors standing 'downstream' of this level.

Contrasting with the above hypothesis, we also need to bear in mind the possibility that planning might simply be neglected or even rejected downstream. For the fact is that if planning bears no faithful relation to real life, as it is perceived by actors at the local government level, it would become utterly futile. However, things rarely come to that pass. More reasonably, there are grounds for thinking that even when it is not all that faithfully implemented, the aims of planning are echoed locally even if they are so diluted in practice that perceptions of it at institutional or local echelons sometimes even run counter to its underlying nature. If the vision upon which planning is based does not reflect institutional or local realities, we may suppose that the actors belonging to these frameworks (institutions or territorial divisions) are liable to see it as a caricature of life, which they are then obliged to rectify in order to give meaning to it.

This is not to say that planning is discarded unused. All it means is that the way in which it is used bears little relation to its original orientation and content. For instance, the actors will not perform the initially planned functions, nor will structures operate in the desired manner, nor above all will the estimated resources in fact be available for the actions planned. The upshot will be a series of activities receiving empirical stimuli from the centre, though essentially motivated by local or institutional behaviour patterns and needs, where necessary referring to the 'excuse plan', but certainly not taking this as a normative framework for their activities.

C. Scope of analysis

What is the resulting image of planning as circumscribed by a series of approximations, taking into consideration both the ways in which it works and the ways in which it is used by those not directly responsible for it? From the discussions of those taking part in the seminar, it gradually transpired that planning has a rôle to play in three phases of educational life: setting objectives, determining means, and framing strategy for their implementation.

1. Setting objectives: three dimensions

The first question concerns the setting of educational policy objectives: these ought to be the source of all planning activities. Indeed, planning's overriding purpose is to identify the broad lines and thrust of the system that it is supposed to serve. If objectives are not explicitly laid down—or reconstituted—planning once more becomes meaningless.

So the first question to ask is: what is the rôle of planning in the setting or reconstitution of national educational objectives? Does it play an active part in laying down objectives? Is it merely a process intended to supply information and thus place essential responsibility for objective-setting in other hands? Or is the preparation of these objectives the essential responsibility of this process, bearing in mind the real limitations of 'what is possible', as discussed earlier, within the framework of what are commonly referred to as 'irreducible' commitments? In that case, planning becomes one of the key vectors in the 'reconstitution' of the objectives implicitly desired by the system.

It is hoped that subsequent research will indicate the conditions in which, and how, planning plays different rôles in determining these objectives. Even so, in determining objectives, the extent of 'interaction' between 'political' actors *stricto sensu* and the administrative machinery is liable to hinder extrapolation from any given case study, as lessons are not easily transposable or generalizable from one country to another, or from one moment to another in the history of a given country. Where objectives are concerned, this interaction takes place within three dimensions. First, objectives will flow from traditions, from a dominant ideology and from the political leadership's more subjective vision of the 'destiny' of the nation, on the one hand, and from external forces, which may arise either from consciously borrowed examples, or from systems implicitly—or explicitly—imposed from without, on the other.

A second dimension of the way in which objectives are set lies in the relations between the educational sector and the remainder of the national politico-administrative machinery. This we might call 'strategic', as it consists of circumstantial political options selected by officials and politicians in the light of the nature of available resources, and of the demands that 'society' imposes on the educational system (either directly by means of associations or lobbies, or indirectly by means of elected or appointed representatives). This then involves choosing from among various options, which in turn entails competition or even struggle among the great many state bodies fighting for a portion of public resources whose overall limits are relatively inelastic. The eventual trade-off will not necessarily take place in strict application of the values, ideology and principles that go to make up the first 'dimension'.

The third dimension might be of a more tactical order and is, in essence, intrinsic to the educational sector itself. This is because both the administrative machinery and the citizens' and professional associations that make up the population of the educational sector, e.g. civil servants and teachers' unions on the one hand, and students' and parents' associations on the other, represent

groups whose specific weight influences the uses made of the resources that ultimately become available. It is even possible that this dimension may be slightly incompatible with the previous two.

While a research programme might easily set out to identify the contents of objectives, it looks as if a detailed analysis of strategies, which essentially concern the world of politics and relations between education and this world, would need to be dealt with selectively and with caution. It would be out of the question for an Institute belonging to an inter-governmental international organization to embark on a 'scientific' examination (i.e. combining the approaches of cultural anthropology and the political sciences) of the nature and determinants of political options that come within the definition of the exercise of the national sovereignty of Member States in the fullest sense of the term. On the other hand, it would be relatively more feasible to investigate the causal relations between educational policy choices and their explicitation in terms of objectives. In examining the way in which objectives are fixed, emphasis should naturally be placed on the rôle of specific actors, on the rôle of planning officials, and notably on their relations with politicians, with the senior echelons of the central government machinery and with those in charge of local administration. Even so, examination of these aspects will always be relatively specific, in other words providing a fairly direct response to the demands of given society, within its specific socio-political context at a given moment in its history; as a result, it will be difficult to extrapolate from such studies. On the other hand, it is quite likely that the rôle and nature of the information, and the way in which this information is collected, compiled, analysed and disseminated, ought to enable us to arrive at a certain level of generalization, if only on a technical level.

2. Determining means: resources

The second aspect of the image of planning conveyed to us by 'upstream' and 'downstream' actors is that of its rôle in determining the means by which objectives are to be achieved. Of the various means, those that have been selected for research correspond by definition to the very nature of planning, since they concern the financial and real resources capable of being mobilized in order to make the objectives credible. Planning comes into its own more particularly in the course of the budget process itself. This process lies at the heart of the system, for it more than any other determines the effective nature and importance of planning relative to the intentions expressed at the outset of the process.

There are two specific features to this process. On the one hand, the budgetary process is the outcome of *bargaining* between the educational authorities (ministries or local authorities, depending on the system in question), which *request* resources, and the financial authorities (Ministry of Finance, decentralized or federal authorities, local education boards, etc.), which *supply* determinate resources.

Second, the budgetary process carries with it an element of *constraint*. This is because resources are limited, and any overspending entails sanctions. It is not an indicative or procedural framework but a strictly normative undertaking, and failure to abide by it entails consequences.

There remains one more immediate consideration to account for the importance of the budgetary process. This is that analysis of this process is becoming daily more crucial owing to the world crisis, which is increasingly affecting the resources available for this sector. For instance, the current or capital resources that any medium- or long-term programming or planning requires are becoming increasingly uncertain. It follows that the budgetary process, confined essentially to setting recurrent annual expenditure levels by means of the bargaining referred to above, still comes closest to planning, although this now has shrunk, lowering its horizons to a far more modest level than originally intended.

The framing of current expenditure estimates raises many problems in connection with its preparation and submission, notably concerning the identification of the so-called 'irreducible' portion of the budget, of which mention has already been made, which in turn permits identification of the true extent of the margin available to the decision-maker for new or innovative actions. The revised estimates, which are the fruit of negotiations based on the initially-presented figures, culminate in a final and definitive 'budget'.

At each of these stages (preparation, negotiation, execution) information plays a vital rôle. Plainly, if the initial budget has been based on relevant and reliable data, the education authorities are more likely to get their arguments across in their dealings with the financial authorities. Even before negotiations begin, the financial authorities will be obliged to overcome the objections that they would otherwise have been entitled to present if the quality of the brief put forward by the education sector is based on facts that are hard to argue with.

Provided the information on which the final budget is based is really up to date, the final out-turn will naturally be more closely in line with the forecasts made. It is at this stage that it is vitally important that resources complement each other. In so far as those provided by the central authorities can be foreseen, the other resources provided by decentralized, federal or local authorities and by citizens' associations will also be able to be predicted with greater accuracy, thereby ensuring that the execution of the programme complies with original estimates.

Capital or investment expenditures belong within a different context. These are more a matter of medium- or long-term forecasts coinciding with the time-frame of educational plans, between three and six years for instance, which are independent of yearly current expenditure budgets. What is more, capital expenditures do not carry with them the same constraints as annual current expenditures. For instance, an investment programme that makes no allowance for overruns as regards details and materials or construction costs is scarcely imaginable.

Lastly, while we can scarcely say that investment expenditures do not, in their own way, to some extent condition the life of an educational system, they are surely not as important in the everyday running of the system as current expenditures, especially as regards, for instance, a subject such as pay, where labour disputes may bring the entire system to a standstill. While one can cite cases of strikes caused by a shortage of classrooms or laboratories, these are in any case less frequent than stoppages due to stagnant or even falling current resources.

In other words, investment or capital expenditures leave considerably less of a stamp on the life of the system. However, the resources that condition this category of expenditure are nevertheless interesting in their own right, owing to the nature of the bargaining that surrounds them. This is because these resources are the outcome of non-recurrent negotiations, since each negotiation deals with a particular investment project which may, particularly in the developing countries, involve the intervention and influence of non-national authorities. In many cases, for instance, while a portion of capital expenditures is paid for out of national resources, a not-inconsiderable portion may be funded from outside sources, either bilaterally or multilaterally.

In the case of bilateral funding, we must not neglect the impact, where government-to-government loans or credits are concerned, of 'tied' aid, and of the conditions upon which investment projects are approved. In the case of private bilateral agreements, 'supplier credits' bear interest at rates that are at any event disproportionate to the resources on which any education ministry can normally hope to count, thereby imposing a heavy burden of finances on the State.

If the aid is multilateral, essentially public, even low interest rates may in any case increase the burden of that country's external debt.

Often, therefore, foreign aid imposes both criteria and charges that are disproportionate to real needs, as well as to the recipient country's ability not only to repay capital and interest, but also to meet the maintenance costs (current expenditures) that these investment projects entail.

In so far as the 'product' of the planning process takes the form of an investment plan which depends principally on external contributions, it can happen that planning becomes an instrument of external aid. In the case of the 'planning as excuse' cited above, it sometimes happens that planning yields a 'product' with figures (e.g. the Plan) which serves as a frame of reference for financial aid which, by definition, is intended for investment projects that rule out the development of any kind of national productive potential. It therefore follows that planning may end up having undesirable effects on the very nature of the organization and expansion of the educational system that it is supposed to structure. This hypothesis admittedly demands to be confirmed and examined in greater detail, but there are grounds for believing that it represents a not uncommon fact of life in many developing countries.

3. Implementation strategy

The third process within a wider, more open panorama that embraces both the rôle, the action and the nature of educational planning, concerns the implementation of objectives and the consequent mobilization of financial and real resources.

If the implementation or execution 'phase' is simply taken to be one of the 'phases' of planning, its significance is seriously misunderstood. In reality, it is the very object of planning, which cannot divest itself of responsibility for implementation even if its function is frequently confined merely to working out a synthesis intended to serve as a framework for the control or monitoring of the plan in action. What is decisive is the nature of that action.

In other words, the key 'moment' in the life of education is when one reality becomes transformed into another, the transition from a constellation of problems into a different configuration, as one of those taking part in the seminar demonstrated. If implementation (of a plan, programme, project, directive, etc.) is the vital phase in the process of transformation, the essential rôle of educational planning should be to *work out a strategy* for this implementation. Only if this strategy is operational and credible—because it reflects reality—will there be implementation, i.e. transformation in the originally intended direction, in keeping with pre-established objectives and within the resources mobilized.

Prior to the implementation proper it is necessary to work out a strategy, or in other words, to *operationalize* the objectives contained in a plan, programme, etc. Only when they reflect practical reality, the conditions and the actors through which they will be coming to life, will 'execution' or 'implementation' finally occur.

Supposing, for the sake of illustration, certain national educational objectives were to propose a generalized decentralization in order to permit action directly related to local situations: these could be 'implemented' only if the implied redistribution of powers reflected a considerably broader reality than that of education alone. For there can be no decentralization of education without decentralization of other powers, notably financial ones. This in turn involves a new political deal and will result in a new configuration of power. Failing this, it will scarcely be possible to 'implement' such unrealistic objectives. This is merely one illustration of the deep-seated difference in nature between 'objectives' and 'implementation', in so far as the former may reflect a voluntarist approach bearing no relation to reality.

For a plan or a programme to become operational, i.e. to get as far as the formulation of a strategy for its implementation, it is therefore essential that it reflect reality in all its complexity; it must arise out of earlier experience, through which it becomes possible to understand and explain *what* actually happened during the execution of earlier plans, programmes or projects.

The planning process cannot be set in motion merely by stating its objectives. It must above all consist in gathering information and informing those involved in the definition of objectives about what happened when earlier

objectives came to be implemented. Objectives cannot be defined merely in terms of the values, ideologies or traditions of a society and its leaders. The construction of directives must be based on information capable of enabling those responsible for framing objectives (where necessary in company with planning officials and others involved in the planning process) to obtain a relatively faithful and up-to-date image of the conditions in which earlier objectives were translated into fact.

There thus emerges in reality a series of phases in the implementation process, each feeding the others. There is a phase of operationalization, i.e. of working out a strategy of execution which represents one step down from objectives, based on the resources effectively obtained, and which defines the practical, relatively concrete conditions in which reality is to be transformed. It is at this stage that these objectives will be translated into programmes or projects with their corresponding territorial location and timetables.

The second phase consists in ensuring that this reality is adjusted to relatively diverse and varied conditions for, even within a single country, a given objective enjoying the same resources will only very rarely find comparable expression from one region or territorial area to another, so greatly do structures, actors, conditions, and even the nature of public opinion and the recipients of educational systems vary. Apart from specific central or federal government measures to ensure a more equitable distribution of resources to the benefit of the least-favoured decentralized or federal bodies, it is at this level that actors other than those belonging to the public sector or central government become involved in the implementation of the 'operationalization plan'. Here we ought to find those who carry some responsibility in the execution of a programme or activity, whether in an organizational, financial, administrative or teaching capacity, or as a 'beneficiary' of the programme or activity in question. It is these actors who will inform the central, intermediate or local planning officials of the forms and conditions in which the plan, programme or activity is implemented, feeding the channels of communication from 'bottom upwards'.

The third phase consists in the gathering and dissemination, from 'bottom' 'upwards' and from 'top' 'downwards', of a permanent flow of information, like a kind of 'film', designed to produce a realistic understanding of the way in which actors, structures and systems of communication (i.e. the way in which 'messages' are produced, transmitted, received, perceived and materialized in reality) function at all levels. This third phase, known as 'monitoring' or 'guidance', is the necessary condition for any redirection of action and allows the planner to supply decision-makers and officials in charge of implementation with tangible facts and figures.

4. Information, the condition of all action

It has already been pointed out that the complex and varied reality in which a plan or programme is implemented is often little known or misunderstood. This is because the people responsible for framing objectives and drawing up

plans or programmes have before them an artificial image of the national educational system, based on statistical averages. This exercise presupposes the existence of a yardstick by which one can measure, from one end of the country to another, the way in which facts reflect political decisions. Unfortunately, both the nature of the image and that of the facts are frequently highly incompatible. It is therefore essential to improve the information-base and the data used in order to obtain a more complete picture of reality.

This picture will be based on four types of information:

1. Conventional-type quantitative information consisting of existing or easily available statistical data. These data are frequently imperfect because incomplete, unreliable and difficult to compare. On the one hand, the Ministry of Education produces and obtains statistics on the basis of certain norms. It rarely happens, however, that the norms established by the Ministry reflect the real behaviour of those whose job it is to gather the quantified information and retransmit it. At this level it becomes necessary to furnish fuller explanations to those whose job it is to gather this information. It is also necessary to ensure that the information requested really does reflect the diversity and complexity of the world in which the person contributing the 'raw material' of the national information system actually lives. Lastly, it is important to ensure that this information is processed rapidly. For if the nationally-processed information is intended to reflect a constantly shifting reality, one cannot insist too heavily on the transience of certain data and on the fact that if they are not gathered in a relatively uniform manner across the nation national comparisons, not to mention international comparisons, will be unreliable.
2. A second category of information will be produced by enrichment of the general framework of the information conventionally requested, by drawing on a greater variety of sources than those of the Ministry of Education alone or, within that ministry, of its statistical unit alone. It will be necessary to centralize existing data on projects that initially required a wealth of knowledge and information that is rarely reflected at a national level. Yet this information, which is sometimes requested or produced by external aid-donor agencies, could considerably enrich the stock of available knowledge concerning education. But we need to go further yet, looking beyond the limits and frontiers of the Ministry of Education, and try to obtain data that might come from other central government bodies or external aid-donor agencies, even if it is subsequently necessary to reconcile these data or harmonize them with those of the Ministry of Education.
3. A third category of information stems from specific surveys, studies or polls; experience has shown that it need not be all that difficult, with some adjustments, to turn them into more permanent and more widespread instruments. This in fact is a question of graduating from a pilot phase producing information on a limited scale to a national coverage, broadening and systematizing a knowledge-base. The aim here is, not to build up a stock of only vaguely relevant or rarely used information, but on the contrary to

extrapolate on a national scale only the information considered essential to the establishment of objectives, determining means and preparing the strategy for their implementation. It takes a practical sense of reality, based on a historical understanding of national events, to be able to distinguish the apparently abundant but relatively useless 'mass of information' from its 'core', which is indeed indispensable.

4. There remains a fourth category of information which is non-quantitative and does not necessarily stem from systematic surveys, statistical polls or studies based on projections. This kind of information is referred to as 'qualitative' and consists in explaining the phenomena, describing behaviour patterns, reflecting a reality that is multifarious and varied both in its nature and in its forms. Like any scientific undertaking, this type of non-quantitative information must *ultimately* be susceptible of synthesis, permitting the extraction of information that is truly relevant to decisions that might possibly be taken in order to improve the situation. This can only happen at a later stage in the linear process described in the previous three categories, namely by progressing from purely descriptive information to a handful of qualitative pilot studies and their subsequent integration into a systematic national framework.

Regardless of whether we are dealing with quantitative or qualitative information, the main point is to build, on the basis of a mass of facts and figures, a limited number of indicators permitting effective monitoring of the plan's execution. This is probably one of the major difficulties surrounding the processing and exploitation of information.

D. An educational planning research model

What emerges from this examination of the planning field, by which we mean the 'points' at which it affects the 'life' of educational systems, is its diversity and the unequal importance of the different 'moments' that go to make up the process of planning, which was the subject-matter of this seminar.

It does seem, however, that if the implementation phase is without doubt the key to 'educational life' it ought to dictate to the planning process the conditions upon which it might become more relevant and hence more effective. This explains why the seminar insisted on the need for planning to reconcile the normative demands of generalizable objectives with the pragmatic limitations imposed by the environment in which this generalization is supposed to occur.

While as a general rule the planning process does include the setting of 'norms' or objectives, it rarely reflects a comparable understanding of the conditions in which they are subsequently applied. Thus, in order to enhance its effectiveness, it is necessary to promote nothing short of a 'learning process' concerning the conditions in which plans, programmes, etc. are put into effect. In other words, there is a need to become more conversant with the diversity of reality in order to improve the way in which norms are set, for these norms must take into account not only the desirable but also the possible.

It still remains for us to state a handful of possible working assumptions. Among them, we must assume that in reality they will be implemented at different echelons and under different conditions. The framing of implementation strategies depends partly on the central administrative machinery (the 'vertical' departments of the Ministry of Education), and partly on either intermediate or local structures. It is at these two levels that the characteristics of implementation will be determined. It is at these levels that objectives need to be translated into terms affecting individuals, i.e. the clients of the 'educational product'. It is here too that we once again come up against the great diversity of existing structures. For the intermediate and local structures within a given country will not all behave according to the same patterns. It is therefore crucial to acknowledge that the implementation of a plan or programme will vary considerably from one region, zone, district or even establishment to the next. This assumption naturally needs to be confirmed by empirical studies on the nature of the behaviour of both the institutions and the individuals making up the system.

This, however, is not enough to provide us with an understanding of the behaviour of all the different components of educational systems. It is also necessary to examine the actors in non-governmental and non-public structures, who often play a decisive rôle. There are various kinds of association, for instance, students' and parents' associations, and trade-union-type associations, to which teachers belong. Furthermore, local authorities play a significant rôle in the reception and interpretation of directives handed down from a higher local, regional or even national echelon, which brings them into the picture, notably with respect to the mobilization of financial or material resources for the running of the educational system. Yet the resources of parents, and even their motivation, may vary considerably from one district to another. It is therefore necessary to gain some understanding of the behaviour patterns of the institutions upon which the school system relies.

Lastly, we must not neglect the importance of the private commercial sector, which finances school establishments outside the state-maintained system. In this 'learning process' surrounding the implementation of a plan or programme, it is therefore necessary to try to form some idea of the entire gamut of structures and actors, in addition to those dependent on the Ministry of Education, who play a decisive rôle in the translation of objectives and in the utilization of means and resources. Concerning the latter, it is impossible, for instance, to confine ourselves to studying the budget-planning process. It is important to broaden our horizon to include a better understanding of resource-*use patterns;* resources are used in as many different ways as there are different structures and actors of distinct origins. The past work of the Institute amply bears out this hypothesis.

Based on these discussions, we may attempt to formulate a general schema which might serve as a conceptual framework for the elaboration of research models containing more specific hypotheses. This schema might also make it easier to identify the different types of study to be undertaken.

With a better understanding of the nature of the three processes that make up the overall planning process, namely objective-setting, mobilization of means, and implementation strategy (implementation of objectives and means), we might probably be able to act to make these processes more relevant to what is expected, and thus rectify the way in which educational planning acts upstream and downstream of the 'places' and 'moments' traditionally identified as those at which it operates.

In other words, if by means of better *information* as to objectives, means and, above all, implementation, we could obtain a more faithful picture of reality, it is quite likely that this would alter the place of educational planning in the wider and political context. The central thrust of the IIEP's concerns is therefore to demonstrate that fuller information concerning the determination of objectives, the mobilization and utilization of means, and the conditions in which educational activities are put into effect would provide us with an instrument, namely planning, that could be of greater use to society. This hypothesis might very roughly be schematized as in the educational planning research model below:

			1			2		3			
			Objectives			Means		Implementation			
			Contents	Strategy	Tactics	Preparation of budget	Revision	Operationalization	Execution of budget	Participation	Monitoring, Guidance
1	Information	Product									
		Actors									
		Structures									
		Communication									
		Results									
2	Techniques										

The abscissa contains the three phases of a continuum—the process already discussed: objectives, means, implementation. The first contains three dimensions:

(i) *Contents*, of which we have already said that they can be influenced by actors who, though totally outside education itself, are involved in its determination. The dimension that constitutes Theme I of the Institute's research work might serve as an illustration of this;
(ii) *Strategies*, that is to say the inter-institutional relations between the State's partners. The studies that are to be carried out under Theme II of the IIEP's research programme will help to identify certain of these relationships;
(iii) *Tactics*, which refer to relations between structures and actors within the school or educational system under consideration.

The second component of the abscissa represents 'means', as already presented, i.e. essentially the financial resources as determined by a budget. This particular process also divides up into two phases, namely *preparation* and *revision*. The third phase, that of the *execution* of the budget, forms part of the third element of the abscissa, namely 'implementation', which is divided into four parts: operationalization, budget execution, participation and monitoring.

The ordinates of this chart are of two types: the first concerns the matter of the *information* which is to be supplied for each of the three processes and their integral parts, regardless of the nature of this information (cf. section 4 above):
(i) *Product:* define the matter of the process under examination: a plan, a programme or a project?
(ii) *Actors:* identify them, determine their rôle and importance in the negotiation characteristic of the processes as a whole at whichever moment one chooses to examine them;
(iii) *Structures:* define the nature of the institutions or administrative organizations, whether public, private, or associations, which are involved in the different processes being analysed;
(iv) *Communication:* identify the conditions in which the negotiation takes place by means of 'messages'; what are these messages? What is the nature of the way in which they are transmitted? How are they received and perceived?

The second ordinate has not yet been discussed. This concerns planning 'techniques', some of them quantitative, others more qualitative relating to communication and participation which, by yielding better information, ought to improve the effectiveness of the processes concerned.

These techniques, which may be used either in the establishment of objectives or in the definition and mobilization of means, or again in the implementation of objectives and means, vary considerably. Some of these are analytical or projective techniques, employed either at a macro-economic or at a micro-social level, as in the case of the school map or in the analysis of school costs for example. Techniques can be used only, however, in so far as the information on which they are based is indeed available.

If this theoretical chart, in which for the sake of simplicity we have not included the different levels of negotiation, planning and action, or the constant interaction between the elements that make it up, illustrates the interrelations between the process on the one hand, and the information and techniques on the other, it is nevertheless worth adding a word about its dynamics. Let us

consider planning as a process of negotiation and exchange, as a process of co-ordination, as a transfer of information and as an information-enhancement process, as well as a means of drawing up procedures and techniques for further improving these processes. Now while these processes themselves produce information, they also rely on other forms or sources of information. On the one hand, the information itself contributes to the perfecting of techniques which in turn help enrich and reinforce the process. At the heart of this movement lies information, first and foremost, enriching the process and enriched by it. In the final analysis, it is improving means, techniques and information that planning practice will ultimately be enriched and adjusted.

It is this dynamic which should set the Institute on the road to new research programmes, on the basis of whose results it will then be able to devise training courses designed for the 'actors' whom the Institute knows best, namely educational planning and administrative officials. The seminar thus had occasion to suggest a research programme of its own, reflecting its approach to the problem.

This research programme would revolve essentially around case studies relating to the three processes: *objectives*, *means* and *implementation*. In this way, retrospective *(ex-post)* studies would seek to understand historical processes in certain countries having a tradition and some systematic experience of educational planning. The studies might be combined with in-depth studies of a specific programme. These projects ought to culminate in an examination of the way in which objectives have been laid down, resources mobilized and execution carried out. This might provide an occasion for studying a number of particular programmes, either national in scope or otherwise, with a view to determining the rôle of planning in the various processes and, by way of consequence, to indentifying the types of information upon which it either is, or might have been, based.

A second type of study would focus on the rôle of planning in crucial periods, in periods of educational change or reform, and might yield results immediately applicable by that country's planners, in the form of training programmes for example.

Thirdly, other studies, focusing rather on the future and based on empirical data, might enable those countries that have not yet put educational planning into effect, to lay the bases of new structures and processes suited to local conditions by means of a fuller understanding of practical conditions. The results of these studies might serve as the 'raw material' upon which to train officials in charge of these future programmes.

This research programme should also examine the components of the determination of objectives, notably its political component (which is identified as being 'strategic' by nature) or its administrative component ('tactical'), which depends upon a better understanding of the workings and structure of the machine. However, it ought to concentrate on the problem as it arises in all the above-described complexity at the local or intermediate levels. Any more detailed knowledge of the products, actors, structures and communication that

characterize the variety within the different processes of a non-formal education programme, for instance, at the local level, can only help to make the planning exercise more relevant.

This is part of the broader, fundamental programme of research into the quality of the underlying information and its availability in a world in which computerization is quickly going to boost the demand for usable data. While this demand may well, in the initial phase, lead to fuller use of the already-existing—and often under-utilized—computer infrastructure, there is little doubt that in the longer run it is bound to contribute to improving the planning process in general.

There are already a number of information networks concerning inventories of research work available, which should enable us to avoid duplication and repeated research work. It would be useful, in the near future, to contribute to the establishment of regional and sub-regional data banks which might serve to underpin broad-scale programmes (major Unesco projects designed to eradicate illiteracy and expand universal primary education between now and the year 2000). A permanent 'monitoring' guidance system, based on a reliable and permanently updated information system, would enable governments to draw closer to the objectives they have set themselves, or at least to revise them more realistically, while comparing results obtained with those of other members of the international community.

Appendixes

I. Papers presented at the seminar
II. List of particpants

APPENDIX ONE

Papers presented at the seminar

* AGUDELO MEJIA, S. Occupational skills certification in Latin America.

* AHMED, Manzoor. Planning issues in basic education: need for testing a new paradigm.

AYMAN, Iraj. Planning for universal primary education as a dynamic component of integrated approach to development for rural, deprived and under-privileged communities.

* BABASSANA, Hilaire. The technological productivity of the Congolese educational system.

BADR, Mohamed Kamal. The Sudanese experience of universal primary education.

* BOUTZEV, Ch. Industrial development and some problems in the planning of technological education in the developing countries.

* CASTRO, Cláudio de Moura. High technology in intermediate countries? The case of Brazil.

* DAMIBA, Aimé. The rôle of planning in the design and implementation of the educational reform in Upper Volta.

* EVANS, David. The learning opportunities inventory (preparing comprehensive inventories in the field of education).

IKONICOFF, Moises. Rôle de l'université et des étudiants dans le développement de l'Amérique latine.

* INBAR, Dan. The nature of educational planning problems, decision-making and communication systems: toward a linkage planning strategy.

INKEI, Peter. The diversification of education: a short presentation of the Hungarian case.

* JEAN, Michèle. Public participation in the drawing-up of educational policies: an unattainable Utopia or a feasible approach? The example of the Study Commission on the vocational and socio-cultural training of adults (Quebec, Canada, 1980-82).

* JHA, C.S. Technological development and educational policies in India.

KING, Kenneth. Science, technology and education in the development of indigenous technological capability.

KOBAYASHI, Susumu. Development and dissemination of new technologies (micro-processing, computers, industrial robots) in Japanese industries and their implications in Japan for education and training.

KUPER, W. Education and rural development (Policy paper of the German Agency for Technical Co-operation, GTZ).

LEMAY, André. Contribution du BREDA (Regional Office for Education in Africa).

* LIZARZABURU, Alfonso. The experience of integral adult literacy training in Peru: from Utopia to reality.

* MALAN, Thierry. Economic and social development policies and educational planning in France.

MARCAL GRILO, E.C. L'articulation entre les modèles de développement économique et technologique du Portugal et ses politiques éducatives, en particulier dans l'enseignement supérieur.

ONGEWE, Deborah, and MACHARIA, David. The determinants and planning of the implementation of a policy of adult education.

PATKOVIC, Milan. Réforme du système éducatif et développement technologique en Yougoslavie.

* PERRIN, J. Can the acquisition of industrial know-how be integrated in educational planning?

PRAWDA WITENBURG, J. Allocation of resources within the education sector in Mexico.

* REIFFERS, Jean-Louis, and SILVESTRE, Jean-Jacques. An approach to the question of education in terms of its complexity.

RENSBURG, Patrick van. The Serowe experience and socially equitable development: some tentative conclusions for planning.

* SCHIEFELBEIN, Ernesto. The rôle of educational research in the conception and implementation of educational policies: the Latin-American experience.

SHAH, Madhuri R. Crisis of universities in India: aspects of planning and management.

SILVA MICHELENA, José. The Venezuelan draft law on higher education.

* SIPPANONDHA Ketudat. The relations between research, planning, decision-making and implementation: the Thai experience in primary educational reform.

* VALISNO, Mona D. The accreditation and equivalency programme of the Philippines: its status and possibilities.

* VLADISLAVLEV, A.P. Lifelong education: a development concept.

* WEILER, Hans. The politics of educational planning: notes on the political economy of education and development.

* WOLTER, Werner. The problems of forecasting and planning education related to recent technological developments in the economy of the German Democratic Republic.

ZOBILA, Kone. Les formes d'importation de technologies et leurs effets sur l'emploi et la formation: le cas de la Côte-d'Ivoire

* Edited versions of these papers are published (in English) in *Educational planning in the context of current development problems, Volume II: Papers presented at an IIEP seminar*, Paris, Unesco, 1984 (French version also available). Copies of the remaining papers may be obtained in mimeographed form from the IIEP as long as stocks are available.

APPENDIX TWO

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These three themes were the subject of a seminar organized by the Institute in Paris in late 1983. This volume contains the introductory document of the seminar, reports of its working groups and reflections based on the seminar discussions.

A second volume, available separately, contains edited versions of a selection of the papers presented at the seminar by researchers, practitioners and personalities from the administrative and academic worlds.

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